

# LINUX MINT 17<sub>x</sub> (32-bit) Cinnamon:

Though this document barely covers the basics, it may, however, satisfy the needs of some newcomers to Linux Mint. As mentioned further on in this document, none of the information herein is advice. It is simply to suggest possible ideas. You must not follow the information herein contained, and are advised to read the Linux Mint Guidelines instead, before proceeding in any way. Please read 'NIL COPYRIGHT' and 'RECOMMENDATIONS' next.

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**Recommendations:** Please take note: This document is limited in its information, and was written by a newcomer to Linux Mint, so you should **not** follow the information contained herein, as it was originally written for the writer's use only. Should you do so, it shall be at your own risk. Most definitely, you should study the User Guide in either PDF or HTML format in the Linux Mint 'Welcome Screen', which is available on the Linux Mint Homepage, and study it before proceeding.

**Why this document:** Should I, the author, reinstall the system, together with my choice of software, then the task will be much faster with this document than without it. I don't require a complicated set-up, consequently this is a simple document, and will remain so.

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**NOTE:** Linux Mint is based on the Debian and Ubuntu systems, though Mint has gone in a different direction. I finally opted for the Linux Mint Cinnamon Desktop environment, as it appealed to me. The choice turned out to be a good one.

**SOME DETAILS OF VERSIONS 17, 17.1, and 17.2** (as far as I can determine).

Linux Mint 17 Qiana Cinnamon Issue Date : 31<sup>st</sup> May 2014. This is an LTS release.

Linux Mint 17 Qiana Cinnamon is current until: 30<sup>th</sup> November 2014.

Linux Mint 17 Qiana Cinnamon will be supported until April 2019.

Linux Mint 17.1 Rebecca Cinnamon Issue Date : 29<sup>th</sup> November 2014. This is an LTS release.

Linux Mint 17.1 Rebecca Cinnamon is current until: The next release, e.g. 17.2.

Linux Mint 17.1 Rebecca Cinnamon will be supported until April 2019.

Linux Mint 17.2 Rafaela Cinnamon Issue Date : 30<sup>th</sup> June 2015. This is an LTS release.

Linux Mint 17.2 Rafaela Cinnamon is current until: The next release, e.g. 17.3.

Linux Mint 17.2 Rafaela Cinnamon will be supported until April 2019.

**LTS:** The above are 'Long Term Support' releases. However, an LTS receives backports only until the release of the next LTS. At that time it switches to 'maintenance only mode', and becomes an old-LTS, and so only receives security updates for the rest of the support period. We get 2-years of backports and security updates on LTS, and then three more years of security updates on the old LTS. Should the next release not be an LTS release, then it may be best not to install it, but wait for, and install the next LTS release when it comes. However, this should be up to the individual.

There may be more releases of Linux Mint, e.g. 17.3, 17.4, etc. (all based on LM17) until about mid 2016, when Linux Mint 18 may be released.

**END OF SUPPORT:** When 'End of Support' is reached, we will no longer receive updates for security issues on our installed software, whether it be for the OS or the programs we use. This includes the Web Browser/s, which is/are essential for Online Banking. As Linux Mint 17 is supported until 2019, we will receive updates for any security issues until then, which means we will not need to upgrade each six months or so.

I first installed Linux Mint 17 Cinnamon 32-bit on an old (2GHz x 2GB) computer, then first based this document on that version. All went well. Since then Linux Mint 17.1 Rebecca Cinnamon 32-bit became available, so was installed on an old 3x4 computer. Next it was installed as an upgrade from v17 to v17.1 on a third computer. All went well once again, as both versions are very similar. The information in this document mostly suits both versions. V17.2 was released on the 30<sup>th</sup> June 2015, and works well.

**DOES LINUX SUIT EVERYONE:** The answer is no. Though Linux is easy to navigate once you learn how to use it, it still takes time to gain that knowledge. From my limited experience on Linux Mint, it does everything I did while using Windows for the last fourteen years. However, some things are easier and some things are harder, as would be expected. I still use Windows for some tasks when those tasks are easier on Windows.

After testing a number of Linux systems I settled on Linux Mint, which ran without any apparent complications. For those wishing to try it, it is best **NOT** to run it alongside Windows, but rather to install it on another computer as a single install. This will allow time to get used to it. Another advantage is it usually does not require as powerful a computer to install and run it on, as might be required for some non-Linux systems.

Most of the software is free (I paid about \$8 for software external to Linux), and to date our computer has not been troubled by viruses, which seems to be the general rule. With a few clicks, any software that requires updating can be updated. For those who only use a computer to play games, Linux is a good choice. It is also a good choice in a number of other ways.

However, after installing Linux Mint, and after installing some of the software listed further on, the following worked well: **CD/DVD/ISO** burning. **Claws Mail**. **DjVu** eBook readers. **ePub** eBookreaders. **FLV** movies. **Gmail**. **JPG's**. Presentations for slide shows (**LibreOffice Impress**). Word type program (**LibreOffice Writer**). **Movies**. **MP3**. **MP4**. **Mpeg**. **PDF**. **Sylpheed** (Mail). **Web Browsing**. **Printing**, a lot of free drivers are available. I have not purchased a compatible **scanner**, as I have one that works on my Windows computer. A web search will show which scanners are supported. **Text**. **YouTube video** downloads using line command. Free **AntiVirus** and **Firewall** are also available. Free **business software**, etc. Once installed, all went well. And, like Windows, this is only the start of what can be done.

**THE ISO:** The '**Linux Mint 17 Qiana Cinnamon 32-bit ISO**', or the '**Linux Mint 17.1 Rebecca Cinnamon 32-bit ISO**', or the '**Linux Mint 17.2 Rafaela Cinnamon 32-bit ISO**' can be downloaded from the Linux Mint Homepage, which can then be burnt to a DVD as an active ISO. I only use the 32-bit ISO's, as they will readily work on the majority of old Windows computers. Before burning the ISO file to DVD, first check the MD5SUM as shown under the next heading. The ISO file can be burnt to DVD using an ISO burner on either a Linux or a Windows System. Do not use a burner that simply copies files, as it must be able to burn active ISO's. The first time I used 'Free ISO Burner Portable' on our Windows machine (as we only had Windows then), though InfraRecorder is recommended (on a Windows machine). If burning the image in Linux Mint, insert the blank DVD and cancel the pop-up box. Right-click on the previously downloaded ISO, click 'Open With', and select '**Xfburn**'. The 'Burn image' box appears. Select '4' speed as the burning rate (slow), and 'Auto' as the 'Write Mode'. Under 'Options', select 'Eject disk' and 'BurnFree' by clicking an 'x' beside them. Now click 'Burn Image'. The ISO image will now be burnt to a DVD as an **Active** ISO Image.

If you have the KDE Desktop instead of the Cinnamon Desktop, select '**K3B**', click 'Tools', then "Write ISO Image". The ISO file we previously downloaded off the Internet appears as 'linuxmint-17-cinnamon-32bit-v2'.

When ready to burn an active ISO for Linux Mint 17x, proceed as indicated above, but not before checking the MD5 Sum of the ISO, as indicated next.

#### **CHECK THE MD5 SIGNATURE OF THE ISO:** (before burning the ISO file to a DVD)

Some things can go wrong, e.g.

1. The ISO (not live) file can develop problems whilst downloading it off the web.
2. The contents of the DVD can be changed during a faulty **Live** ISO burn process.
3. The DVD was faulty, which will result in errors if used to install the operating system.

If any of the above occur, and the DVD is used to install the Linux Mint OS, then it will be difficult to get assistance when things malfunction after installation. This is why we check things out in advance.

We will now check the **MD5sum** signature of the downloaded Linux Mint 17x ISO files:

For Linux Mint Qiana 17 32-bit Cinnamon it is: **00ef2ba7f377251852045664376ecebf**.

For Linux Mint Qiana 17 64-bit Cinnamon it is: 3d8c3c3e82916e2110f965111b0ee944.

For Linux Mint Rebecca 17.1 32-bit Cinnamon it is **d1a9474f4f48c3a2220ddd1ff57f76b3**.  
For Linux Mint Rebecca 17.1 64-bit Cinnamon it is 0307ffcd5046c176599904193899426e.

For Linux Mint Rafaela 17.2 32-bit Cinnamon it is **3aada27e78ed61984f763ca620213524**.  
For Linux Mint Rafaela 17.2 64-bit Cinnamon it is b8a0651bb0086519fbf7a70fc12db17e.

To find the MD5sum signature, go to the folder that contains the ISO we downloaded off the Internet. It will probably still be where we downloaded it to, e.g. on the Linux Mint Desktop (or elsewhere). After locating the ISO file, right-click on it, then click 'Check MD5' from the drop-box. A tiny 'Information' box shortly appears showing the MD5sum of the downloaded ISO file. If the numbers match those shown above, then the downloaded file is OK. If they do **not** match, then do **not** use this ISO file.

**I found when I tried to check the MD5sum of a few OS ISO's saved to their respective folders, that the MD5 Information box would not appear. However, when the ISO's were copied to the Desktop, then the check proceeded as expected.** This may not be the case on all computers.

There is software available for Windows called 'MD5summer' which can be used to check the ISO, if downloaded in Windows. After all, we usually have Windows first. There may also be other software available.

If the ISO file is OK, then it is time to burn it to DVD as a live ISO.

If we burnt the ISO correctly to DVD, then we won't be able to see the ISO on the DVD as a single file. Instead we will see the following folders: 'boot', 'casper', 'dists', 'isolinux', 'pool', 'preseed', and '.disk'. There are also two Text files: 'MD5SUMS' and 'README.diskdefines'.

The Linux Mint **v17** Cinnamon 32-bit ISO file downloaded to the desktop was 1.2GB in size, or 1,247,805,440 bytes (measured in Linux). The live DVD was 1.2GB (while its 8-items are made up of 143 items).

The Linux Mint **v17.1** Cinnamon 32-bit ISO file downloaded to the desktop was 1.4GB in size, or 1,412,431,872 bytes (measured in Linux). The live DVD was 1.4GB (while its 8-items are made up of 143 items).

The Linux Mint **v17.2** Cinnamon 32-bit ISO file downloaded to the desktop was 1.5GB in size, or 1,499,463,680 bytes (measured in Linux). The live DVD was 1.5GB (while its 8-items are made up of 144 items).

**PERFORMING AN INTEGRITY CHECK OF THE DVD:** This is done after the live DVD is created to confirm that the DVD is OK. To begin: Start the computer, insert the live DVD, then turn the computer off. Restart the computer, then rapidly press, e.g., F12, until the option to boot from the DVD appears, then select that option. An 'Automatic boot in **6 seconds**' screen appears. As soon as it appears, press the space bar on the keyboard. The 'Welcome to Linux Mint 17 Cinnamon 32-bit' screen appears. It has five options. They are: **1** Start Linux Mint. **2** Start in compatibility mode. **3** Integrity check. **4** Memory test. **5** Boot from local drive. Navigate to '**Integrity check**', and press 'Enter' on the keyboard. The following message appears: 'Checking integrity, this may take some time'. Further checks appear, one of which is 'Checking./casper/filesystem.squashfs'. A message then says 'Keys:Press any key to reboot your system'. Once done, follow the prompts.

**OLD COMPUTERS:** Many of our aged computers are OK if installing Linux Mint 32-bit, as Mint is usually not as heavy on resources as **some** non-Linux systems. Old computers with an x86 Processor, 1GB RAM, a 10GB (free space) HDD, a Graphics Card that can handle 800x600 resolution, a DVD Drive and a USB port often works. However, it is better to have at least **4GB RAM and 3GB CPU**, which will then increase the other specs. The available free software packages have been quoted to number about 45,000 or so for Linux Mint, which can be downloaded easily using the inbuilt Software Manager, while connected to the Internet. It usually takes more

than one package to install a program.

**LINUX MINT AND WINDOWS:** I chose not to run Linux Mint alongside Windows as a matter of personal choice. You might do otherwise. As Linux and Windows use different file systems, conflicts often result. This is why Linux is often removed when installed beside Windows.

**CAN I DUAL BOOT LINUX MINT 17x ON A WINDOWS 8 PC:** Any PC with a Windows 8 logo sticker has Secure Boot enabled by default. This means it may have to be disabled if dual booting Linux Mint 17x with Windows 8. This may not apply if you decide to install Mint as the only system on that computer.

**VIEWING LINUX MINT BEFORE INSTALLING IT:** Turn on the computer, insert the Linux Mint DVD, then switch the computer off. Press the computer's start button, then immediately press the F12 key on the keyboard. Keep pressing the F12 key (fast) until the option to boot from the DVD appears. Select that option, then follow the prompts. Once the Linux Mint Desktop appears, navigate through it to see if it suits your requirements. If it does, connect the Internet to the computer to allow for file updating while installing, then double click the round DVD icon on the screen to start the installation process. Once started, follow the prompts. As already stated, my preference is to run one operating system on the computer, and not two. This avoids unnecessary conflicts between systems. You can, however, safely run Windows XP or Windows 7 as Virtual Machines in Linux, after Linux is installed. How to do so appears in this document.

**Linux Mint is available in both 32-bit and 64-bit. Most Linux computers can run both versions. However, only a small percentage of Windows computers can run the 64-bit version. The 32-bit version of Linux Mint runs on either 32-bit or 64-bit Windows computers. It is OK to run the 32-bit OS on both old and new computers, as it usually runs fast.**

**UPDATE MANAGER:** Immediately after installing the OS it should be updated. To do so, first click on the tiny shield located on the panel near the bottom right side of the Desktop. When the Update Manager screen appears, click on 'Install Updates' near the top of that screen. There will always be either a 'tick' or an 'I' in the middle of the shield icon. Whenever the 'tick' is replaced with an 'I', then it is time for further updating. It is often advisable to restart the computer after finishing the very first updating of the computer, as some of the updates require this to apply them.

**Update Manager:** (continued) The Update Manager lists various software for download. Under the 'Security' tab, you can view a list of safety levels. 1-3 is considered stable and safe. 4-5 is considered unstable and risky, so are not marked by default for installation (Ubuntu installs all of their updates by default). To get a good perspective on this, go to 'How-To Geek' and see what they say. It is worth reading: <http://www.howtogeek.com/> Once there, click on 'Search' near the top right side, then paste the following into the window: 'Ubuntu Developers Say Linux Mint is Insecure. Are They Right?' Either way, some say there are few problems. Or, put another way, there can be problems no matter which way you go. I install all updates.

**Update Manager:** (continued) **Read carefully.** Instead of using the Update Manager, you can paste '**sudo apt-get update**' into the the Terminal to update the system, though for every day updating it is **not** recommended to go this way. Where possible I use the Update Manager.

**UPGRADING** (when the next version is available): One way to upgrade is to paste **sudo apt-get upgrade** into the Terminal, press 'Enter', then follow the prompts. The **correct** way is to open the **Update Manager**, click 'edit' at the top, then click '**Upgrade to Linux Mint 17x**'. If the upgrade is available, it could take a while to complete. Remember, there is a difference between an update and an upgrade. One thing with upgrading is that the upgrade overwrites the existing system, so you

might also lose your system settings. If your system is working correctly, then why upgrade.

On the other hand I upgraded one of our computers from version 17 to version 17.1 to see what would happen (if things did not turn out well, then it would be a simple job to reinstall). Make sure the computer is connected to the Internet when upgrading. It proceeded without problems.

**Upgrading:** (continued) The following was performed after all software choices included in this manual were installed. Using APTonCD, I found the packages totals immediately before and immediately after the upgrade were as follows:

Before Upgrade: Total of packages were 1507 (2GB). Automatically selected were 1295 (1.6GB).

After Upgrade: Total of packages were 1708 (2.3GB). Automatically selected were 1354 (1.7GB).

Some changes to the applications after installation: e.g. 'Menu', 'All Applications'.

1. 'Universal Access' in v17 was renamed 'Accessibility' in v17.1.
2. 'Help' was added in v17.1. It is the 'Linux Mint 17 User Guide'.
3. 'Notifications' was added to v17.1.
4. 'Privacy' was added to v17.1.

Everything seems to be working well since the Upgrade, and none of our personal data on the computer was lost. (We saved our data to an external HDD before starting just in case).

**SECURITY SOFTWARE:** Now that we have just installed and updated Linux Mint, it is time to install the security software before installing our everyday software choices. A list of some security software appears under a few '**Security**' headings on pages **17 to 19** of this document. This includes the **Antivirus**, the **Firewall**, **chkrootkit**, **rkhunter**, and **Nemiver**. You may or may not wish to apply the Firewall rules listed, e.g. the sudo ufw deny/allow rules. I chose to do so. As Linux Mint has no central registry (it does have a registry made up of text files), it seems to run more free of problems than computers with non-Linux Systems installed. It is nevertheless wise to install an Antivirus and Firewall, not only for its own security, but also, so as not to infect another persons' Windows computer. There is more on installing the Firewall and Antivirus further on as stated. Some people run Linux Mint with no Firewall or Anti-virus installed, and report they have no problems, but it may not be advisable to do this.

I heard there were about fifty known malware that could run in Linux in 2014, but before it can, we must first give it 'root' permission to do so. In this sense, it could be said that a firewall and AntiVirus are not necessary. As mentioned previously, I installed security software in Linux, as this would protect both Linux and Windows machines while transferring files back and forth between them, including the receiving and sending of emails, etc. Malware that is designed for Windows machines will not execute in Linux systems, as Linux has a different file system to Windows, e.g. ext2,3,or ext4. However, if not protected, Linux can still harbour this malware to be sent elsewhere.

**WALLPAPER:** When you are ready to select your Desktop Wallpaper, click on 'Menu', 'Preferences', then 'Backgrounds'. This comes included with the OS. Alternatively, copy and paste your preferred JPG's into a folder in a location of your choice, then right-click the file of choice, and click 'set as Wallpaper'. You can also paste **sudo apt-get install mint-backgrounds-\*** into the command line 'Terminal' beside the \$ sign, then click 'Enter' to start the process of downloading extra wallpaper from previous versions of the OS. I did not bother to do so, as we had a good supply of jpg's. Anyway, if we have Linux Mint 17.1 or 17.2 instead of Linux Mint 17, then we will already have wallpaper from earlier versions of Mint.

**APPLETS DELETED BY MISTAKE:** If any applets are deleted by mistake from the bottom



Panel, simply right-click on any empty space on that Panel, then left-click on '+ **Add applets to the panel**' from the pop-up. The 'Applets' box appears. Left-click on the applet we want to add, click 'Add to Panel', then click 'Configure'.

**THE MATE DESKTOP:** You might like to install the Linux Mint 'Mate' desktop. If so, paste **sudo apt-get install mint-meta-mate** into the 'Terminal', click Enter then follow the prompts. **Before** doing this, read up on it first, as some of the information listed in this file will no longer apply.

**USING SUDO:** Don't use sudo to install ordinary applications, as unnecessary use of it can mess up your files. When you launch an ordinary application in it, it creates files and directories that are the property of 'root', and not of you. It also changes ownership of some existing files to 'root'. Use the Software Manager wherever possible, as it is the central file installer for the system, and infections will be very, very difficult to enter the system this way.

**.DEB FILES:** Avoid the overuse of .deb files where possible, as problems might occur. However, there are some useful programs that require it.

**DECREASING THE SWAP USE:** **I think that decreasing the Swap Use is RISKY to the System.** The swap is a separate partition on the hard disk reserved for virtual memory, and is usually set to 60, which is said to be only fit for servers, and is also said to be too high for everyday Desktop use. Computers with 1GB or less RAM are often slow in Linux Mint, as they must access the Hard Disk too often, thus slowing down the computer. To see if the swap is already set to 60, paste the following into the Terminal: **cat /proc/sys/vm/swappiness**, then press enter. The number is now visible. No password is required.

If we wish to lower the setting to, e.g., 10, first make sure we have 'gksu' and 'leafpad' installed from the Software Manager. Then paste **gksudo leafpad /etc/sysctl.conf** into the Terminal, press Enter, and enter the computer's password. A Leafpad text file appears named 'sysctl.conf'. Scroll to the bottom of this text file, then paste the following there (both lines at once):

**Decrease swap usage to a more reasonable level**  
**vm.swappiness=10**

Now save the text file in the usual way, and **reboot** the computer. After the computer reboots, check the new swappiness value to see if it is now 10. To check it, once again paste **cat /proc/sys/vm/swappiness** into the Terminal, then press Enter. If all is OK, the new value of 10 will appear. A useful rule is: If our Desktop computer has less than 1GB of RAM, then set the swappiness to 5. If it has 1GB or more of Ram, then set it to 10.

**THE COMPUTER MONITOR:** After installing Linux Mint for another person, they may have to adjust their monitor's screen resolution, otherwise the Desktop may over or under-fill the screen. To reset it: Click 'Menu', 'Preferences', and then 'Display'. The monitor's resolution can now be set for correct viewing. The correct resolution might be 1024x768 (4:3), or 1152x864 (4:3), or 1280x1024 (5:4), and so on. When the correct resolution is selected, then the screen will fill correctly.

**RESTORING THE DEFAULT SETTINGS:** (if necessary)

1. Right-click on 'Menu'. A small box appears with 'Configure...' and 'Remove this applet'.
2. Click on 'Configure...'. The 'Applets' screen appears.
3. Click the 'More actions...' button. It is located to the right of the 'Remove' button.
4. From the drop-box, click 'Reset to defaults'.



**CD / DVD BURNING SOFTWARE:** '**Brasero**' (for the Cinnamon Desktop) comes with the installation disk. Two other CD/DVD Burners are '**K3b**' (for KDE Desktop), and '**xfburn**' (for xfce Desktop). Nevertheless, I prefer to use xfburn in the Cinnamon Desktop. All work well, but are fairly slow. One other burner is '**ImgBurn**', which runs well in the WINE software within Linux. It is free, and was created to run in Windows computers. ImgBurn is a lightweight CD, DVD, HD DVD and Blu-ray burning tool. For those who like Nero, '**Nero for Linux**' is also available, but is not free. Whenever a CD / DVD is inserted, a message appears: 'You have just inserted a blank CD / DVD. Choose which application to launch, then follow the prompts'. I prefer to cancel this window, and open the burner of choice. The first three program icons can be located as follows: Click 'Menu', 'Sound & Video', then the burner of choice. The ImgBurn Icon can be located in the 'Menu, 'Wine' section. All are easy to use.

**SYSTEM FREEZES:** If we press Ctrl+ALT+Delete, we can log out of the system under normal conditions. However, if the system freezes, we can press Ctrl+Alt+Backspace to return us to the login screen without having to reboot the system. Another way is to unplug the computer, then restart it.

**PRINTERS: (getting them recognized).** Should our printer not be recognized by the computer, then connect the printer to the running computer then turn it on. Make sure the internet is connected. Click 'Menu', then 'Administration', and then 'Printers'. The 'Printers - Localhost' box appears. It should automatically detect the printer driver. If the driver is the wrong one, click once on the driver in the window to highlight it, click on 'Printer', then click 'Properties' in the same 'Printers - Localhost' box. Click 'Make and Model:' in the new window, then click 'Change' if necessary. After a while some alternative driver should appear which can be tried. Now follow the prompts. Connecting the printer is usually straight forward.

**PRINTERS: (continued)** Printer drivers can also be downloaded from the Software Manager. We can type 'printers', then 'printer drivers', then 'ubuntu-drivers', each in their turn, in the 'Software Manager' search window, then manually install some the drivers we want. We may not get the drivers we need this way though. Under '**printers**' in the Software Manager, there is 'printer-driver-cjet', plus some other drivers. Under '**printer drivers**' in the Software Manager, there is 'foomatic-db-gutenprint', 'printer-driver-all', 'printer-driver-all-enforce', (and 'Printer-driver-gutenprint' which should come installed). Under '**ubuntu-drivers**', there is 'ubuntu-drivers-common', etc. These drivers allow for some other printers to be recognized.

Once the printer is set up, it is not necessary to click on the 'Printers' Icon in order to print. The printer's software window is simple, but is OK. For an HP Printer, install the '**HPLIP Toolbox**' software, also available from the 'Software Manager' screen. It is said to be very good.

**SCANNERS:** Some drivers can be downloaded in the Software Manager. Under '**xsane**', there is 'xsane' and 'xsane-common'. Under '**hplip**', there is 'hplip-gui', 'hplip', 'hplip-doc', 'hplip-dbg', and 'hplip-data', which installs the HPLip Toolbox (for printing and imaging).

HPLip stands for (Hewlett-Packard Linux Imaging & Printing). It can print and scan using HP inkjet and laser based printers. For a list of supported HP units, go to: [www.hplipopensource.com/hplip-web/supported\\_devices/index.html](http://www.hplipopensource.com/hplip-web/supported_devices/index.html). Either copy and paste this address into the search engine, or hold down Ctrl while clicking on this link.

Under '**scanners**' in the Software Manager there is 'sane-utils', 'libsane', 'libsane-common', 'libsane-dbg', 'libsane-dev', 'libsane-extras', 'libsane-extras-common', 'libsane-extras-dbg', 'libsane-extras-dev', etc. However, unless we have the correct driver for a scanner, then the scanner will not work.

To locate a compatible scanner for Linux Mint, go to 'SANE - Supported Devices'. The web page can be located at [www.sane-project.org/sane-supported-devices.html](http://www.sane-project.org/sane-supported-devices.html).

**CAMERAS:** Our digital camera was quickly identified, and choices re what to do with the images were available. Install 'ufraw', 'ufraw-batch', 'gimp-ufraw', etc.

**WHAT OPENS MY OLD FILES** (see below): After installing Linux Mint 17x Cinnamon, then updating the programs that came on the installation disk (about 80 of them), and then rebooting the computer, I checked which of the files taken from our Windows computer would work. Following is a list of the files, etc. tested, and the results. Where **OK** appears, those worked straight up. Any software in this section can be installed from the Software Manager. My software of choice is highlighted in yellow. After installing the missing software, everything listed below worked well except the scanner, as we had the wrong one: The missing software can be installed from the Software Manager.

**DjVu eBooks:** **OK**. 'Document Viewer'. Also install 'DjVuLibre DjView 4'.

**Email Client:** **Nil**. To open our old 'Outlook Express' and 'Windows Live Mail' emails, both of which have an .eml ending, install 'Sylpheed'. How to install Sylpheed appears further on. Also check out Claws Mail and Gmail, also listed further on.

**Epub eBooks:** **Nil**. Install 'FBReader' (e.g. 'E-book Reader'), as well as 'E-Book Viewer'. 'E-Book Viewer' installs with 'Calibre'.

**FLV movies:** **OK**. 'VLC media player' and others. Install 'SMPlayer', 'Gnome MPlayer', and 'Videos', e.g. 'Totem'.

**HTML files:** **OK**. 'Mozilla Firefox Web Browser'.

**JPG:** **OK**. 'Image Viewer'. Install 'gthumb', 'Gwenview' and 'ImageMagick'.

**MHTML files:** **Nil**. Install 'Qupzilla'.

**Mpeg 4:** **OK**. 'Videos', e.g. 'Totem'. Also 'VLC media player'.

**M.S. Word:** **OK**. 'LibreOffice Writer'. Install 'AbiWord' (it can be useful).

**Mobipocket:** **Nil**. Install 'FBReader' (e.g. 'E-book Reader'). It also retains memory.

**Movies** (The old AVI movie files from the Internet Archive): **Nil**. Install 'Enqueue in SMPlayer', 'Videos' and 'SMPlayer'. They all work well.

**Movies** (The DVD VOB movie files): **OK**. 'VLC Media Player'. Install 'Videos'. After inserting the movie DVD, right-click on the tiny DVD Icon that appears on the Desktop, then click 'Open with', then 'VLC media player', or 'Videos', e.g. 'Totem'. The movie does not start automatically, but plays well, using the above.

**MP3:** **OK**. VLC media player. Install 'Rythumbox', and 'Audacious'. '1by1' is a free Windows based freeware, and is very good, but must be installed in 'Wine'. Also, its' sound level is lower in WINE.

**MP4:** **Nil** (e.g. MP4 movies from the Internet Archive): Install 'Videos' e.g. 'Totem', and 'SMPlayer'. Both work well.

**PDF** (for viewing): **OK**. 'Document Viewer'. Install 'Okular'.

**PDF** (Print to PDF): **OK**. 'LibreOffice Writer' (e.g. 'Export as PDF')

**Powerpoint:** **OK**. 'LibreOffice Impress'.

**Read documents aloud:** **Nil**. Install 'Gespeaker'. It works ok. Also 'eSpeak speech synthesizer' e.g 'espeak-gui'.

**Text:** **OK**. Gedit (e.g. 'Text Editor'). Install 'medit', and 'Kwrite'. 'Notepad' installs with WINE.

**Windows Programs:** **Nil**. Some Windows programs can be installed in *PlayOnLinux*, though the space used to install them (in PlayOnLinux) seems excessive. Install 'Wine' (e.g. 'Wine Is Not an Emulator'), then install PlayOnLinux, as it is a front-end for Wine. Wine is a program that runs some Windows software within Linux. The space used to install programs in WINE is not excessive. A list of programs that we once ran in Windows, but now run in Wine appears further on.

**A CHOICE OF SOFTWARE TO INSTALL:** As there are about 45,000 packages available from the Software Manager, it makes the choices difficult. Consequently, after a bit of searching, I installed all the software listed in this file on an old computer with 2GB RAM and 2Ghz Processor, to both load and test it. Surprisingly, the computer still ran well, and months later had developed no problems. We later purchased a Dell 780 Optiplex as a second computer to run with Linux, with 3Ghz Processor and 4GB RAM, which was a good choice. A couple of the heavier games worked better on this machine. The limited list below might help when selecting some software for downloading, as its' download name may occasionally differ from its' installed name. This can make some software difficult to locate. I have added both names below to make it easier.

Antivirus, Firewalls, Rootkits, Port Scanners, Debuggers. 3-14 (e.g. the colour settings)

Driver Manager. 10-2

System cleaning tools (some are risky). 5-1

System monitoring tools. 7-14

CD/DVD burning software. 3-4

ISO etc. burning software. 3-5

Document Scanning Software (scanners). 4-12

Document printing Software (printers). 12-12

Software that runs my Windows files. 1-5

Programs that came installed in Linux Mint 17.2. 1-4. *(About 90 programs appear in 'All Applications'. However, there is software that comes with the system that does not appear in All Applications).*

**Abiword.** (a Word Processor)

**Accessibility** (in 17.1 and 2). (called Universal Access in Linux Mint Qiana Cinnamon 17)

**AcetoneISO.** (to mount and manage CD and DVD images)

**Account details.** (to change login name and password. Be careful)

**AcidRip DVD Ripper.** (a ripping and encoding DVD tool using Mplayer & Mencoder)

**AisleRiot Patience,** e.g. aisleriot. (a gnome solitaire card game collection)

**Applets.** (configuration applets for Cinnamon)

**APTonCD.** (installation disc creator for packages downloaded via apt)

**Archive Manager.** (archive manager for Gnome)

**Artha.** (a handy off-line thesaurus based on WordNet)

**Asunder.** (a graphical audio ripper and encoder)

**Audacious.** (a small and fast audio player)

**Audacity.** (a fast cross-platform audio editor)

**Backgrounds.** (the Desktop backgrounds for Linux Mint)

**Backup Tool,** e.g. mintbackup. (a backup and restore tool)

**Banshee.** (a media management and playback application)

**Baobab.** (a gnome disk usage analyzer)

**Biloba.** (a turn based strategy game for up to 4 players)

**BleachBit**. (this is risky, as it can destroy too much)

**BleachBit (as root)**. (as above)

**Bluetooth**. (for Bluetooth adapters)

**Bovo**. (Gomoku five in line board game)

**Brasero**. (a CD/DVD burning application for Gnome)

**Browse C:Drive**. (to view Windows programs installed in WINE)

**Calculator**, e.g. gnome-calculator. (a calculator with financial and scientific modes)

**Calibre**. (an E-book converter and Library Management)

**Calligra**. (an extensive productivity and creative suite)

**Cbrpager**. (a viewer for cbr, cbz and cb7 files. It is a comic book archive)

**CD Player**, e.g. Goobox.

**Character Map**. (for gnustep)

**Chess 3.8.3.**, e.g. gnome-chess. (a 2D/3D chess game for Gnome)

**ChessX**. (a chess database)

**Chkrootkit** - a rootkits detector. (best to install it by Command Line)

**Clamav** & **clamtk**. Also **ClamAV-daemon** and **ClamAV-freshclam**. (An AntiVirus program)

**Claws Mail**. (a fast, lightweight and user-friendly gtk+2 based email client)

**claws-mail-pgpmime**. (a pgp/mime plugin for claws mail)

**claws-mail-address-keeper**. (an address keeper plugin for claws mail)

**claws-mail-archiver-plugin**. (an archiver plugin for claws mail)

**Clementine**. (a modern music player and library organizer)

**Clonezilla**. (a bare metal backup and recovery of disk drives. Not installed)

**Color**.

**Colorcode**. (an advanced clone of the Mastermind code-breaking game)

**Comix**. (a Gtk comic book viewer)

**Configure Wine**.

**Crafty**. (a state-of-the-art chess engine, compatible with X-Board)

**Crossover Linux** by Codeweaver. (it is a commercial program and is not installed).

**Date & Time**. (date and time settings)

**dconf Editor**. (a simple configuration storage system-utilities)

**Desklets**.

**Desktop**. (select the items you want to see on the desktop)

**Desktop Sharing**. (allows other viewers to share your Desktop)

**DeVeDe**. (a simple application to create video DVD's) It removes Mplayer + libavcodec54.

**digiKam**. (a digital photo management application for KDE)

**Disk Usage Analyser**, e.g. baobab. (for Gnome)

**Disks**.

**Display**.

**DjView4**. (a viewer for the DjVu image format)

**djvulibre-bin**. (a viewer for the DjVu image format)

**djvulibre-desktop**. (a viewer for the DjVu image format)

**Document Viewer**. ( it opens DjVu's and PDF's)

**Domain Blocker**.

**DOSBox Emulator**. (x86 emulator with Tandy/herc/cga/ega/vga/svgas/ graphics, sound and dos)

**Driver Manager**. (manage the drivers for your devices)

**Dropbox**. (share and store your files online)

**E-book reader**, e.g. FBReader. (it opens ePub, HTML, MHTML, Mobipocket)

**E-book Viewer**. (it installs with 'Okular'. It opens ePub)

**easyMP3Gain**. (to modify the loudness of MP3, Ogg Vorbis and MP4 audio files)

**eBoard**. (a Gtk + chessboard program)

**Eeschema**, e.g. kicad. (electronic schematic and pcb design software). It requires a reboot.

**Effects**.

**eSpeak speech synthesizer**, e.g. espeak-gui: (a graphical user interface for espeak. It reads aloud)

#### **Extensions.**

**Extlinux.** (a collection of boot loaders, e.g. ext2,3,4 and btrfs bootloader).

**Extreme Tux Racer**, e.g. extremetuxracer. (a fast game)

**Extreme Tux Racer extras**, e.g. extremetuxracer-extras

**Fax Address Book.**

**Files.** (the Home Folder)

**Files.** (as above)

**Firefox Web Browser**, (e.g. Mozilla)

**Firewall Configuration**, e.g. 'gufw': (it is said to be an excellent choice)

**Five or More**, e.g. five-or-more. (a game)

**FocusWriter.** (a fullscreen distraction-free writing program)

**Font Viewer.**

**Fonts.**

**FreeCad.** (an alternative open source cad program- alpha)

**freecad-doc.**

**Frescobaldi**, e.g. lilypond. (a Qt4 lilypond sheet music editor)

**FSlint.** (a utility collection to find and fix common errors in file storage. Be cautious)

**Furius ISO Mount**, e.g. furiusisomount. (iso, img, bin, mdf and nrg image management utility)

**Gbrainy.** (a brain teaser game and trainer)

**Galculator.** (a scientific calculator)

**GConf Cleaner**, e.g. gconf-cleaner. (a database cleaner. Be careful)

**Gdebi Package Installer**, e.g. gdebi. (a simple tool to install deb files – gnome gui)

**Gedit** (a lightweight text editor for the Gnome Desktop. It is the same as Medit and Text Editor)

**Geeqie.** (an image browser using gtk+)

#### **General.**

**Gespeaker.** (a gtk + front-end for espeak and mbrola. It works ok)

**GIMP Image Editor.** (the gnu image manipulation program)

**gimp-ufraw.** (Gimp importer for raw camera images. A part of GIMP)

**gksu.** (a graphical frontend to su). This may have come installed.

**gLabels.** (for labels, business cards and media cover creation for Gnome)

**gmusicbrowser.** (a graphicaljukebox for large music collections)

**GNOME Mplayer**, e.g. gnome-mplayer. (gtk + interface for MPlayer)

**GNU Backgammon**, e.g. gnubg. (a graphical or console backgammon program with analysis)

**GNU Denemo**, e.g. denemo. (a free and open music notation editor)

**GnuCash.** (a personal and small-business financial-accounting software)

**Gnumeric.** (a spreadsheet application for Gnome – main program). **Install the extras.**

**GoldenDict.** (a feature-rich dictionary lookup program)

**Google Gnome.** (a browser and to receive and send emails)

**GParted.** (a Gnome partition editor)

**Graphics Tablet**, e.g. mypaint. (a paint program for use with mypaint)

**gResistor.** (resistor colour code calculator)

**gThumb.** (an image viewer and browser)

**Guayadeque Music Player.** (a lightweight music player)

**Gufw:** (it is the graphical user interface for ufw)

**Gwenview.** (an image viewer)

**Help** (added in 17.1). (Linux Mint 17 User Guide)

**HexChat.** (an irc client for x based on x-chat 2)

**Hitori.** (a logic puzzle game similar to Sudoku)

**HomeBank.** (to manage your personal accounts at home)

#### **Hot Corners.**

**HPLIP Fax Utility.** (install all HP files for this and HPLIP Toolbox below)

**HPLIP Toolbox.** (HP Linux printing and imaging and faxing – gui utilities – qt based)

**Htop.** (Interactive processes viewer)

**Hugin.** (it can stitch multiple projects in a batch queue)

**Hugin Calibrate Lens.** (included)

**Hugin Panorama Creator.** (a panorama photo stitcher – gui tools) (included)

**Image Viewer.** (the Gnome image viewer)

**ImageMagick.** (it is an image manipulation program)

**Imagination.** (a DVD slide show maker)

**Inkscape.** (a vector-based drawing program)

**Input Method.** e.g. im-config. (input method configuration framework)

**ISO Master.** e.g. isomaster. (a graphical CD image editor)

**JEdit.** (a plugin-based text editor for programmers written in Java)

**jScribble.** (a graphical notepad for use with a pen tablet)

**K3b.** (a sophisticated CD/DVD burning application)

**KAlgebra.** (an algebraic graphing calculator)

**Kate.** (a powerful text editor that can open multiple files simultaneously)

**Kbackup.** (an easy to use backup program)

**kCalc.** (a simple and scientific calculator)

**KDE Partition Manager,** e.g. partitionmanager. (a file, disk and partition manager for kde)

**kDiskFree,** e.g. kdf. (a disk information utility)

**Keyboard.** (keyboard settings)

**KGeography.** (a geography learning aid for kde)

**Kindle.** Go to [www.amazon.com/CloudReader](http://www.amazon.com/CloudReader), and click on the 'Kindle Cloud Reader' webpage.

**Klavaro.** (a flexible touch typing tutor)

**Kmahjongg.** (a mahjongg solitaire game)

**KMyMoney.** (a personal finance manager for kde)

**Knights.** (a chess interface for the kde platform). It uses GNU Chess, Crafty, Stockfish & Sjeng.

**KPatience,** e.g. kpat (fourteen solitaire card games)

**Kraft.** (handles business documents for small enterprises. Free if small)

**KSnapshot.** (a screen capture tool)

**KSudoku.** (a sudoku puzzlr game and solver)

**KsysGuard,** e.g. ksys. (a kde task and performance monitor. View the cpu and memory usage)

**KsystemLog.** (a system log viewer)

**Kwrite.** (a simple graphical text editor)

**Lame:** (an MP3 encoding library. A frontend)

**Languages.** (language settings)

**Leafpad.** (a gtk + based simple text editor. It is similar to Notepad)

**LibreCAD.** (a computer-aided design cad system)

**LibreOffice.** (an office productivity suite – metapackage)

**LibreOffice Base.** (an office productivity suite - database)

**LibreOffice Calc.** (an office productivity suite - spreadsheet)

**LibreOffice Draw.** (an office productivity suite - drawing)

**LibreOffice Impress.** (an office productivity suite . It also runs MS Power Point presentations))

**LibreOffice Math.** (an office productivity suite – equation editor)

**LibreOffice Writer.** (an office productivity suite – word processor)

**Log File Viewer.** (a system log viewer for GNOME)

**Login Window.**

**LRF Viewer.** (it installs when Calibre is installed).

**LuckyBackup 0.4.7.** (a rsync-based gui data backup utility)

**LuckyBackup 0.4.7 in 'super user mode'.** (both install together)

**Mahjongg.** (a simple recognition pattern game)

**Mastermind,** e.g. gnome-mastermind. (a Mastermind 'tm' clone game for gnome desktop)



**MathWar**, e.g. mathwar. (a flash card game designed to teach simple maths)

**medit**. (a lightweight text editor for the Gnome Desktop. The same as Gedit and Text Editor)

**Mouse and Touchpad**. (probably for laptops)

**Mousepad**. (a simple xfce oriented text editor)

**Mozilla Firefox Web Browser**. (a web browser)

**Mozilla Thunderbird**. (emails, rss and newsgroup client with integrated spam filter)

**MPlayer**. (a movie player for unix-based systems)

**Mtink**. (a status monitor tool for Epsom Inkjet printers)

**Mtinkc**. (see above)

**MyPaint**. (a paint program for use with graphics tablets)

**Nemiver** (a stand-alone graphical debugger for Gnome).

**Nemo**. (a file manager and graphical shell for cinnamon)

**Network**. (networking)

**Network Connections**. (it displays network connections)

**New Login**. (perhaps a login for other persons)

**Notepad**. (a wine notepad, running on Wine 1.6.2)

**Notifications** (in 17.1).

**Okular**. (a universal document viewer, PS, PDF, ODT, DVI, XPS, G3 fax, comics. KDE)

**Oracle VM VirtualBox**. (it runs virtual machines, both windows and linux)

**Palapeli**. (a jigsaw puzzle)

**Panel**. (setting up the cinnamon desktop)

**Partclone**. (a utility to clone & restore partitions. 'Redo Backup and Recovery' is a frontend to 'Partclone', which does the actual backup and restore. Have the Redo ISO inserted at startup.

**Pasaffe**. (a password manager for Gnome)

**Passwords and Keys**, e.g. 'seahorse'. (a gnome frontend for gnupg, a privacy guard program)

**Periodic Table**, e.g. gelemental. (a periodic table viewer)

**Personal File Sharing**. (share files over the network)

**Pidgin Internet Messenger**. (a graphical multi-protocol instant messaging client for x)

**Pitivi**. (a non-linear audio/video editor using gstreamer)

**PlayOnLinux**. (a front-end for Wine. Play some Windows programs in Linux. It may request the installation of the following programs: 'curl' and 'p7zip-full'. See further on about installing extra data re command line). Once installed, open it then let it update.

**Power Management**. (e.g., turn off the screen when inactive for x minutes, etc)

**Power Statistics**. (see the processor's wakeups per second)

**Preferred Applications**. (select the preferred applications for file types)

**Printers**. (add printers box)

**Privacy** (in 17.1).

**Psensor**. (it displays graphs for monitoring hardware temperature)

**PyChess**. (a chess graphical user interface for several chess engines)

**PySol Fan Club Edition**, e.g. pysolfc. (more than 1,000 solitaire type games)

**Q4Wine**. (a qt4 gui for Wine)

**Qcomicbook**. (a qt viewer for comic book archives, cbr, cbz, cba, cbg, cbb)

**Qt 4 Assistant**.

**Qt 4 Linguist**.

**QupZilla**. (a lightweight web browser based on libqtwebkit)

**Radiotray**: (a streaming radio player)

**Rawstudio**. (a raw image converter)

**Remmina**. (a remote desktop client for gnome desktop viewing)

**Remove orphaned packages**, e.g. GtkOrphan. (a tool to find and remove orphaned libraries)

**Rkhunter**. (for rootkits. Best installed by Command Line)

**Rhythmbox**. (music player and organizer for gnome. Plays selected group of mp3's)

**Scan Tailor**, e.g. scantailor. (a post-processing tool for scanned pages)



**Screen Locker.** (lock p/c when put to sleep, or when screen turns off)

**Screen Saver** e.g. cinnamon-screensaver. (Cinnamon screen saver and locker)

**Screenshot.** (a screenshot program)

**Scribus.** (an open source desktop page layout – stable branch)

**Shisen-Sho**, e.g. kshisen (a solitaire game)

**Shutter.** (a feature-rich screenshot program)

**Simple Scan.** (connect the scanner, and adjust the image to the correct format)

**Skanslite.** (an image scanner for kde, based on gthe Kscan backend). May work with a Pixma 495?

**SMPlayer.** (a complete front-end for MPlayer and MPlayer 2)

**SMPlayer YouTube Browser**, e.g. smtube (YouTube browser and downloader). **No longer works.**

**Software Manager.** (to install new applications. Location: 'Menu', 'Software Manager')

**Software Sources.** (use the official repositories only. Be careful of other packages)

**Sound.** (settings for speakers, etc)

**Sound Converter**, e.g. soundconverter. (requires Gstreamer LAME plugin)

**Sound Juicer**, e.g. sound-juicer. (a CD ripper for Gnome)

**soundKonverter.** (an audio converter frontend for kde)

**StarDict.**

**Startup Applications.** (set the preferences for startup including Welcome Screen)

**Startup Disk Creator**, e.g. usb-creator-kde. (using a USB key or SD card for KDE)

**Startup Disk Creator**, e.g. usb-creator-gtk. (using the above for Gnome)

**Stellarium.** (a real-time photo-realistic sky generator)

**Sudoku**, e.g. gnome-sudoku. (a sudoku puzzle game for gnome)

**SuperTuxKart.** (a 3D kart racing game)

**Sylpheed.** (a lightweight e-mail client with gtk+)

**Synaptic Package Manager**, e.g. synaptic. (a graphical package manager)

**Sysinfo.** (displays computer and system information)

**System Info.** (e.g. OS version, processor, memory, HD size & Graphics Card, etc)

**System Monitor.** (shows processes running, Resources plus File Systems)

**System Profiler and Benchmark**, e.g. hardinfo. (it displays a lot of system info)

**System Settings.** (it opens up the System Settings screen, e.g. Appearance, Preferences, etc))

**TEA Text Editor**, e.g. 'tea'. (a graphical text editor with syntax highlighting)

**Terminal.** (using the Command Line)

**Tetravex.** (put tiles on a board and match their edges together)

**Text Editor**, e.g. Gedit 2.30.4 and Medit. (a lightweight text editor for the Gnome Desktop)

**Themes.** (a choice of desktops. Can get more online. Perhaps 279 files)

**Thunderbird Mail** (e.g. Mozilla). (email, rss and newsgroup client with integrated spam filter)

**Tomboy Notes**, e.g. Tomboy (a Desktop notetaking program using wiki style links)

**Transmission.** (a fast and easy BitTorrent client)

**UFRaw.** (a standalone importer for raw camera images)

**Unetbootin:** (an installer of linux/bsd distributions to a partition or usb drive)

**Uninstall Wine Software.** (to add or remove software)

**Universal Access** (in 17.1). (seeing, hearing, typing, pointing and clicking) (called **Accessibility** in Linux Mint Qiana Cinnamon 17)

**Update Manager**, e.g. mintUpdate 4.6.7. (the update shield icon near bottom of screen)

**Upload Manager**, e.g. mintUpload 3.9.9. (it lets you upload files on the Internet)

**USB Image Writer**, e.g. usb-creator-gtk. (create startup disk using a CD or disc image-for Gnome)

**USB Stick Formatter.** (it can format a USB stick)

**Users and Groups.** (add user/s and or groups)

**Videos 3.10.1.** See 'Totem'. (a simple media player for the Gnome desktop based on gstreamer)

**VLC media player.** (a multimedia player and streamer)

**Welcome Screen**, e.g. mintwelcome. (a welcome screen for Linux Mint)

**Window Tiling and Edge Flip.**

**Windows.** (System Settings, etc)

**Wordview Microsoft doc Viewer**, e.g. 'catdoc'. (a MS Word to tex or plain text converter)

**Workspaces.**

**Xboard.** (an x window system Chess Board)

**Xfburn.** (a CD-burner application for xfce desktop environment. ISO's, audio CD's, etc)

**Xpad.** (a sticky note application for x)

**XSane Image Scanning program.** (a graphical frontend for scanner access)

**youtube-dl.** (This software assists in downloading YouTube videos by line command).

**Youtube**, e.g. smtube. (smtube is 'SMPlayer and YouTube Browser'). YouTube videos have not been available through this downloader since the 20<sup>th</sup> May 2015. To find out more, go to [www.youtube.com/devicesupport](http://www.youtube.com/devicesupport). Videos can be downloaded by line command using '**youtube-dl**'. See 'YouTube videos' in this document. There may be other options also.

**SECURITY:** Though Linux computers are said to be fairly free from viruses, rootkits, etc, it is best to be safe. If our Linux computer is clean, then it should not infect other peoples Windows Systems.

**ANTIVIRUS:** Viruses are usually not a big problem in Linux systems. However, it is advisable to install an antivirus in Linux in case we inadvertently infect a Windows computer.

**1. Install it this way:** Install **ClamTK**, **ClamAV**, **ClamAV-daemon** and **ClamAV-freshclam** from the Software Manager. ClamAV is a utility for Unix, and is a command line interface, and Clam Tk is a graphical front-end for ClamAV. Download it in the Software Manager, or by pasting **sudo apt-get install clamav clamtk** in the Terminal. Its main use is in scanning emails. To scan for viruses in the Home directory, paste **clamscan -r /home** into the Terminal, then press Enter. It can take some time to scan the Home directory, but it will give a readout at the finish. To scan a particular Home directory, paste **clamscan -r /home/username** into the Terminal, then press Enter. Any affected files can then be manually removed. To update ClamAV, paste **sudo /etc/init.d/clamav-freshclam restart** into the Terminal, then press Enter.

**2. Or install it this way:** I used the following method to install the latest version of the software: Paste **wgethttps://bitbucket.org/dave\_theunsub/clamtk/downloads/clamtk\_5.07-1\_all.deb** into the Terminal, press Enter, enter the Password, then follow the prompts. For the next move enter **sudo apt-get install gdebi** into the Terminal, press Enter, then follow the prompts. Next paste **sudo gdebi clamtk\_5.07-1\_all.deb** into the Terminal, press Enter, then follow the prompts. As this latest version was not available from the Software Manager, we just installed this deb package from the official site instead. Again, to scan for viruses in the Home directory, paste **clamscan -r /home** into the Terminal, then press Enter, and to scan a particular Home directory, paste **clamscan -r /home/username** into the Terminal, then press Enter. Any affected files can then be manually removed. If you need to uninstall clamtk, paste **sudo apt-get remove clamtk\*** into the Terminal, then follow the prompts.

**FIREWALL.** To install the **Gufw** Firewall, paste **sudo apt-get install gufw** into the Terminal, then follow the prompts. When finished, paste **gufw** into the Terminal to configure it. To check our current settings paste **sudo ufw status verbose** into the Terminal. The Firewall can be disabled or enabled by pasting the following into the Terminal: \$ **sudo ufw enable**, and \$ **sudo ufw disable**.

Once installed, it is located at: 'Menu', 'All Applications', and then 'Firewall Configuration'. I set the Profile as 'Home', the Status as 'On', the Incoming as 'Deny', and the Outgoing as 'Allow'.

We can also 'allow' or 'deny' most of the Firewall rules. After denying access, we might like to reverse the command. Take the first one that is shown below, e.g. '**sudo ufw deny 5353/udp**'. To '**allow**' it after denying it, paste the following into the Terminal: \$ **sudo ufw allow 5353/udp**. In other words, replace 'deny' with 'allow'.

Note: Never use `sudo` for ordinary applications, as unnecessary use of it can mess up your files. When you launch an ordinary application, it creates files and directories that are the property of 'root', and not of you. It also changes ownership of some existing files to 'root'.

We can add 'firewall rules' by pasting the following into the Terminal. Wait till each is finished before installing the next one: 'ufw' stands for 'Uncomplicated Firewall'. I set these rules on my computer to test it, but had to change two of them back, as indicated below.

```
sudo ufw deny 5353/udp
sudo ufw deny 5900/tcp
sudo ufw deny 22
sudo ufw deny 25/tcp
sudo ufw deny 135,139,445/tcp
sudo ufw deny 137,138/udp
sudo ufw deny 110
sudo ufw deny 2049
sudo ufw deny 143
sudo ufw deny 21/tcp
sudo ufw deny ssh (Skipping adding existing rule v6)
```

**To block Outgoing Ports Except Those Needed** (This configuration will allow the following outbound ports: 20-21, 53, 80, 123, 443 which is all that is required for many users, unless you plan on running a server):

```
sudo ufw deny out 1:19/tcp
sudo ufw deny out 1:19/udp
sudo ufw deny out 22:52/tcp (if I allow this, emails will send in XP VM)
sudo ufw deny out 22:52/udp
sudo ufw deny out 54:79/tcp
sudo ufw deny out 54:79/udp
sudo ufw deny out 81:122/tcp (if I allow this, emails will load in XP VM)
sudo ufw deny out 81:122/udp
sudo ufw deny out 124:442/tcp
sudo ufw deny out 124:442/udp
sudo ufw deny out 444:65535/tcp
sudo ufw deny out 444:65535/udp
```

**Re-check your changes:** We should now re-check the changes. Paste `sudo ufw status verbose` into the Terminal, then press Enter. We can now view a list of 'DENY IN' as well as of 'DENY OUT'.

**Re-check enable (required):** Paste `sudo ufw enable` into the Terminal, then click Enter. If all is secure a message will say 'Firewall is active and enabled on system startup'.

Once the above is done, and if we need to access any of the ports temporarily, then open up the gufu GUI, and momentarily disable the firewall, or a port or ports and services. If so, remember to re-enable them when finished. (The Gufw icon can be located as follows: 'Menu', 'All Applications', and then 'Firewall Configuration').

To further increase the security, go to <http://ubuntuforums.org/showthread.php?t=1893751> as well as to <http://www.frozentux.net/documents/iptables-tutorial/>

**CHKROOTKIT** is a tool to locally check for signs of a rootkit. It contains a `chkrootkit`: shell script that checks system binaries for rootkit modification. To install it, paste `$ sudo apt-get install chkrootkit` into the Terminal, then follow the prompts. To scan with `chkrootkit`, open up the terminal and type the command: `$ sudo chkrootkit`. This will perform all the necessary tests. If you want an

automatic daily run of chkrootkit: Open **/etc/chkrootkit.conf** and replace **RUN\_DAILY="false"** by **RUN\_DAILY="true"**.

**RKHUNTER:** Rootkit Hunter scans files and systems for known and unknown rootkits, backdoors, sniffers, and malware. The application consists of the main shell script, a few text-based databases, and optional Perl scripts. It can recognise and run external applications like 'skdet' and 'unhide'. It should run on almost every Unix clone. To **install** it, paste **\$ sudo apt-get install Rkhunter** into the Terminal, then follow the prompts. To **run** Rkhunter, open up the terminal and type the command: **\$ sudo rkhunter -c (make sure the dash e.g. '-' is short and not long)**. This will perform all the necessary tests. By default, the log file **'/var/log/rkhunter.log'** will be created. It will contain the results of the checks made.

The following command option causes rkhunter to check and **download the later version** of any of its text data files: **\$ sudo rkhunter -update**. Also **sudo rkhunter -propupd** as well as **sudo rkhunter -c**. We will probably get some false positives when we first run rkhunter, which usually happens on a fresh installation.

**NEMIVER:** It is a stand-alone graphical debugger for Gnome, and can be installed from the Software Manager. It is located in: 'Menu', 'Programming', then 'Nemiver'.

**REMOVING UNNECESSARY PACKAGES:** Paste **sudo apt-get autoremove** into the Terminal, press Enter, then follow the prompts to remove any unnecessary packages.

### **BROWSERS. Making Firefox your default browser:**

How to make the 'Firefox Web Browser' the **default** browser: Click the 'Open Menu' button (at the top right of the page), and click on 'Preferences' from the drop-box. Click on the 'Advanced' tab in that box. The 'Firefox Preferences' box appears. Click on 'Make Firefox the default browser' if it is not already selected. Now click 'Close'.

**BROWSER PLUGINS. The Adobe Flash Plugin** (adobe-flashplugin) comes installed by default in Linux Mint, and works in Firefox. **Google Chrome** uses the **Pepper API** based flash player, and it also comes installed in its' browser. We can install the Pepper API based 'flash player' in Chromium if we are using it. To do so, paste **\$ sudo apt-get install pepperflashplugin-nonfree** into the Terminal, then click 'Enter' on the keyboard. If this does not install it, then paste the following into the Terminal, **\$ sudo dpkg-reconfigure pepperflashplugin-nonfree**, then click 'Enter'.

**GOOGLE. Installing the Google Chrome Web Browser & Gmail:** Gmail is said to have the best spam/virus filters. It also works with POP or IMAP.

**GOOGLE.** To install Google Chrome in Linux Mint / Ubuntu: Paste the following into the search engine: **'http://support.google.com/chrome/answer/95346?hl=en'**. Open the Web Page of the same address, click on 'Download Google Chrome', click a dot beside (in our case) '32 bit .deb (for Debian/Ubuntu)', then click 'Accept and install'. Once downloaded, copy then paste it to, e.g., the Desktop. The file is around 50MB in size. To install, double click on it and follow the prompts. Once installed, double-click on the Google Chrome Icon. A small box appears. It asks 'Make Google Chrome the default browser'. Either leave the tick there, or remove it to suit your preference, then click 'OK' (I left Mozilla Firefox as our default browser). The Google/Chrome browser will now start loading. (*Google Chrome can be installed on Windows from the above web page also*).

**GOOGLE.** Once done, the Google 'Set up Chrome' web page appears. There are two windows to

fill in. The first is 'User Name' (e.g. email address), and the second is 'Password'. If you **already** have a Gmail Account, then enter that information now (**don't** enter, e.g., your Outlook Express User Name and Password). If you don't already have a Gmail account, then enter a newly made up email address and password of your choice (**you cannot change these details later on, so be careful, as it will be your primary Gmail account**). Once done, click 'Sign in'. The 'Google' screen appears, and towards the top right side your name appears in tiny print. 'Gmail' also appears near the top. To view any emails that have been forwarded to you, click 'Gmail'. This email client is free, and it allows up to 15GB of download.

#### **GOOGLE. Installing Google Chrome by Line Command:**

Google Chrome can also be installed by Line Command in the **'Terminal'** by pasting the following there: `$ sudo gdebi google-chrome-stable_current_i386.deb` (our first choice). Alternatively, paste in `$ wget https://dl.google.com/linux/direct/google-chrome-stable_current_i386.deb`.

#### **GOOGLE. Uninstalling Google Chrome by command line.**

One way is to copy and paste `sudo apt-get remove google-chrome-stable` into the Terminal, then enter the password. A **better** way is to copy and paste `sudo apt-get purge google-chrome-stable` into the Terminal, enter the password, and when the uninstall is completed, enter `sudo apt-get autoremove` into the Terminal, then enter the password. Google Chrome is first purged, and then any remaining packages and config files are removed.

#### **GOOGLE. Using Gmail in Mozilla Firefox:**

Paste '<https://www.gmail.com/intl/en/mail/help/about.html>' in the search engine, then click 'Enter'. If you don't already have a Gmail account, click 'Create an account' near the top right of the web page (if you already have an account, click 'Sign in', located to the left of 'Create an account'). The 'Create your Google Account' page then appears. Now enter the details. Fill in your name as you want it to appear in your emails. Type in the email address that you want to create for your new Google Gmails, into the 'Choose your username' window. Do not enter any of your other email addresses, e.g. Outlook Express. This is a free and separate account for your use (you can continue to use your old email addresses supplied by other companies). Fill in the rest of the windows, then click 'I agree with the Google Terms of Service and Private Policy', then click 'Next step'. Now follow the prompts.

#### **GOOGLE. Using Gmail on any Windows or Linux system:**

If you wish to access and send Gmails on either Windows or Linux systems **without installing Google**, then go to the '<https://accounts.google.com/servicelogin?service=mail>' Web Page, and create or log in to your Gmail Account. Paste this address into your browser each time to access your emails.

#### **GOOGLE. How to send an Email using my Gmail:**

1. Open the Google web page.
2. Click on 'Gmail' near the top right. Your Email Client opens.
3. Click 'Compose' near the top left. A small 'New Message' box appears.
4. Type the email address (of the person you are sending the email to) in the 'To' window.
5. Type the subject of the email into the 'Subject' window.
6. Type your message in the larger window beneath the 'Subject' window.
7. Files can be added by clicking the attach icon at the bottom of the box.
8. Click the 'Send' button at the bottom left of the 'New Message' box.

#### **GOOGLE. Creating my second Gmail account:**

1. Open the Gmail screen.
2. Click the blue button near the top right side. A pop-down box appears.



3. Click 'Add Account'. The 'Sign in to add another account' screen appears. The tiny 'Email' and 'Password' windows are in this screen.
4. Type the name of the second account you want to create, into the 'Email' window. It might be, e.g. [joeblo@gmail.com](mailto:joeblo@gmail.com).
5. Type the password in the 'Password' window.
6. Click 'Sign in'. The second Gmail account has now been created.

#### **GOOGLE. Sending Gmails from the second account:**

1. Open the Google page (if you have just created your second account, then reopen your Google page).
2. Click the blue button near the top right side. A pop-down box appears (this box lists your Gmail Accounts).
3. Click on the second account. The Google page appears.
4. Click on 'Gmail'. The Gmail page appears. Any Gmails sent from this page will be sent from your second Gmail Account, and any replies sent to you will be returned to this Gmail Account.
5. You can create more Gmail Accounts if needed.

#### **GOOGLE. Adding another person's Gmail account:**

1. Open the Google page.
2. Click on '**Gmail**' near the top. Your primary Email Client opens.
3. Click on '**Settings**'. It looks like a cog near the top right. A drop-box appears.
4. Click on '**Settings**' from the drop-box. The '**Settings**' page appears.
5. Click on '**Accounts and Import**', located in the 'Settings' panel. A new '**Settings**' page appears.
6. Click on '**edit info**' in the 'Send mail as' section. The '**Edit email address**' box appears.
7. Click a **dot** beside the first window in the box, then add the second person's name.
8. The currently running Gmail User Name (email) address appears beside 'Email Address'.
9. Click on **Specify a different "Reply-to" address (optional)**, e.g., [janegirl@gmail.com](mailto:janegirl@gmail.com).
10. Click 'Save Changes'.

**GOOGLE. Changing the contact phone number with Google.** Do the following if the phone number that Google can contact us on is changed. It is for security purposes. (If the OS has just been re-installed, then a few of the moves below may be different).

1. Open the Google page.
2. Click on '**Gmail**' near the top. Our primary Email Client opens.
3. Click on '**Settings**'. It looks like a cog near the top right. A drop-box appears.
4. Click on '**Settings**' in the drop-box. The '**Settings**' page appears.
5. Click on '**Accounts and Import**', located in the 'Settings' panel. A new '**Settings**' page appears.
6. In the 'Change Account Settings' section near the top of the page, click on '**Other Google Account Settings**'. The 'Account Settings' page appears.
7. In the 'Personal info' section of this page, click on '**Phone**'. The 'Phone' screen appears. The old phone number we previously listed with Google appears there.
8. Click '**Edit**' located next to the phone number. The '**Please re-enter your password**' screen appears.
9. Enter the '**Password**' we used when we originally set up our Gmail Account.
10. Click '**Sign in**'. We are now returned to a previous 'Phone' screen.
11. Click once again on '**Edit**'. The 'Update phone' box appears.
12. Click on '**Update number**'. The 'Update phone' box now shows the old phone number.
13. Replace the old phone number with the new one, taking care not to delete the country code, then press '**Verify**'.
14. The 'Update Phone' box now lists your new contact phone number. A message says 'To make sure everything works, we'll send you an SMS with a verification code'. Click '**Get code**'.
15. The 'Update phone' box now says 'We just sent you an SMS. Enter it to verify your phone'.

Please note that SMS delivery can take a minute or more.

16. Turn on your replacement mobile phone and open the SMS to obtain the verification code. Enter the code into the '**Enter code**' window, then click on '**Verify**'.
17. A message now says 'Thank you for verifying your phone'. A tick appears beside 'Use this number to alert me of suspicious activity'. Click on 'Continue'. Now follow the prompts to finalize the process.

### **GOOGLE EARTH. Installing Google Earth:** (on 32-bit systems)

When I installed Google Earth from the Software Manager, and when it did not work, I left it installed, then did the following: Make sure moves 1, 2. and 3 are completed.

1. Paste **sudo apt-get install gdebi** into the Terminal, press **Enter**, then enter the password.
2. Paste **wget http://dl.google.com/dl/earth/client/current/google-earth-stable\_current\_i386.deb** into the Terminal, then press Enter.
3. Paste **sudo gdebi google-earth-stable\_current\_i386.deb** into the Terminal, then press Enter. Now follow the prompts. Google Earth now works well.

**SYLPHEED (MAIL):** We will begin by installing Sylpheed from the Software Manager. In our case we also installed 'sylpheed-doc' and 'sylpheed-plugins'. There are additional choices which can be added if required.

Sylpheed is a free and open source email and news client, and it configures easily. The mail is stored in the **MH** mailfile format. It runs on Linux etc systems, and can also be set up to run on Windows. Sylpheed saves our emails with an **.eml** case ending when saving them to a folder of our creation, on e.g. the Desktop, due to our choice of setup.

After Sylpheed is installed, click 'Help' (near the top left side), then rest the mouse pointer on 'FAQ' from the drop-box, and then click on 'English'. The 'Sylpheed FAQ' screen appears. You can now study how it works, and set it up to suit your own needs.

When setting up a free account, our moves are determined by our 'Server type'. The four choices are 'POP3', 'IMAP4', 'POP3 (Gmail)', and 'IMAP4 (Gmail)'. In our case, we have a phone-line connected modem, and selected POP3. The following information will be required: our **server address**, our **username**, and our internet account **password** (e.g. the original password given to us by our Internet supplier). We do not require a second paid email account to set up Sylpheed.

We have a Windows 7 computer with 'Windows Live Mail'. Our second computer has Linux Mint installed. We wanted to be able to receive and send emails on both systems as required, hence Sylpheed. If set it up as follows, Sylpheed simply downloads emails from our original server when required, and without additional cost. I will now show how our email client was set up.

1. Double click the Sylpheed icon. The '**Mailbox setting**' box appears.
2. Click a dot beside '**Create mailbox at the following default location: /home/ e.g. tom/Mail**'.
3. Click 'OK'. The '**New account setup**' box appears. Click a dot beside '**POP3**'. Three other choices were 'IMAP4', 'POP3 (Gmail)', and 'IMAP4 (Gmail)'.
4. Click 'Forward'. The next '**New account setup**' box appears. Type our name we want to appear on our emails into the '**Display name:**' window.
5. Type our email address into the '**E-mail address:**' window.
6. Click 'Forward'. The next '**New account setup**' box appears. Type our full email address into the '**User ID:**' window.
7. Type 'mail.bigpond.com' into the '**POP3 server:**' window.
8. Type 'mail.bigpond.com' into the '**SMTP server:**' window. Do not click ticks into any of the three tiny boxes.



9. Click 'Forward'. The next '**New account setup**' box appears. It says '**Your new mail account has been set up with the following settings. If you want to modify the settings, select 'Configuration - Preferences for current account' or 'Configuration - Edit accounts' in the main menu**'. It then displays the following: 'Display name:', 'User ID:', 'POP3 server:', and 'SMTP server'. In our case, the POP3 server is 'mail.bigpond.com:110', and the SMTP server is mail.bigpond.com:25'.
10. Click 'Close'. The 'New account setup' box disappears, and the 'Sylpheed' email client fully opens.

As previously mentioned, any emails saved to the folder of our creation using the Sylpheed email client (in Linux Mint), are saved in the .eml format. If these emails are transferred to a Windows system via, e.g. a USB stick, they will open correctly. 'Outlook Express' as well as 'Windows Live Mail' emails downloaded in a Windows system and copied to Linux Mint will also open correctly in Sylpheed. This is handy, as we have a number of old emails we might wish to access.

If necessary, Sylpheed can be set as our Default email client as follows: Right-click on an email stored on, e.g. the Desktop. Place the mouse pointer on 'Open With, then click 'Other Application...'. The 'Open with' box appears. Click on 'Sylpheed' to highlight it, then click 'Set as default' (near the bottom of the box), then click 'OK'. From now on, whenever we double-click on a stored email, Sylpheed will open them, even the Claws Mail emails.

**CLAWS MAIL:** Go to the Software Manager to install Claws Mail, if you wish to use it. In our case we also installed 'claws-mail-pgpmime', 'claws-mail-address-keeper', 'claws-mail-archiver-plugin', and 'claws-mail-doc'. There are additional choices which can be added as required. I installed Claws Mail and Sylpheed on the same computer in Linux without any conflicts, especially as Sylpheed was previously set as the Default email client.

**The case ending:** Claws Mail emails that are downloaded in Linux, then later transferred by flash drive to a Windows computer, will not open in Windows until we type the .eml case ending to the email. It then opens correctly. Sylpheed emails transferred from a Linux computer to a Windows computer will open without this adjustment.

**Some history:** Claws Mail is a free and open source, GTK+ based email and news client. It configures easily and has a number of choices. The mail is stored in the **MH** mailbox format. The Windows version of Claws Mail can also be installed in Windows systems. It was previously known as Sylpheed-Claws.

**The Manual:** After Claws Mail is installed, click 'Help' (near the top left side), then click on 'Manual'. The 'The Claws Mail User Manual' screen appears. You can now read up on how it works, and set it up to suit your own needs.

**Some setup info:** When setting up the free account, our moves are determined by our 'Server type'. The three types are 'POP3', 'IMAP', and 'Local mbox file'. In our case we selected POP3. The following information is requested: our server address, our username, and our internet account password. If we don't enter our password at setup, then we will have to enter it each time we login to it. I chose this option for safety. If we already have Sylpheed installed and setup, then when we go to setup Claws Mail, we will be given the option to select the same setup in a couple of clicks.

**Windows and Linux:** Our first computer with Windows 7 installed in it handled our emails for years. Later we obtained a second computer and installed Linux Mint on it. We wanted to be able to receive and send emails on both operating systems as required, hence either Claws Mail and/ or *Sylpheed* installed in Linux. If set up as follows, Claws Mail as well as *Sylpheed* accesses emails from our original server if and when required, free of cost. This is because we are already paying

for Internet access with Telstra Bigpond.

1. Double click the Claws Mail icon. The '**Welcome to Claws Mail**' box appears.
2. Click 'Forward'. The '**About You**' box appears. Type the name we want into the '**Your Name:**' window, that is, the name we want to appear on our emails. We will have to delete the name that first appeared there.
3. Type our current email address into the '**Your Email Address:**' window. This is the email address that we had before installing Claws Mail. We will have to delete the name that first appeared there. In our case we typed 'Nil' into the '**Your Organization:**' window.
4. Click 'Forward'. The '**Receiving mail**' box appears. Click 'POP3' into the '**Server type:**' window.
5. As our current account is with Bigpond, we typed 'mail.bigpond.com' into the '**Server address:**' window.
6. We typed our current Bigpond email address into the '**Username:**' window.
7. We typed our current Bigpond email account 'password' into the '**Password:**' window. We did not place ticks in the two tiny boxes, and we did not fill in the 'Client SSL certificate (optional)' windows.
8. Click 'Forward'. The '**Sending mail**' box appears. In our case we typed 'mail.bigpond.com' into the '**SMTP server address:**' window. We left the remaining tiny boxes and windows blank.
9. Click 'Forward'. The '**Configuration finished**' box appears. It says 'Claws Mail is now ready. Click Save to start'.
10. Click 'Save'. The Claws Mail screen appears and is ready to go.

**HIBERNATION, how to suspend it. I think that suspending Hibernation is RISKY to the System.** In Linux Mint, Hibernation (suspend-to-disk) is enabled by default.

Should it create problems for your Desktop PC, then Hibernation can be disabled. Before we disable it and run suspend-to-ram instead, make sure we have both **gksu** and **Leafpad** installed.

Then paste **sudo touch /etc/polkit-1/localauthority/90-mandatory.d/disable-hibernate.pkla** into the Terminal, press Enter, then enter the Password.

Paste **gksudo leafpad /etc/polkit-1/localauthority/90-mandatory.d/disable-hibernate.pkla** into the Terminal and press Enter. Enter the Password, and press OK. A Text file appears.

Paste the following into the empty text file (all at once).

**[Disable hibernate (upower)]**

**Identity=unix-user:\***

**Action=org.freedesktop.upower.hibernate**

**ResultActive=no**

**ResultInactive=no**

**ResultAny=no**

**[Disable hibernate (logind)]**

**Identity=unix-user:\***

**Action=org.freedesktop.login1.hibernate**

**ResultActive=no**

**[Disable hibernate for all sessions (logind)]**

**Identity=unix-user:\***

**Action=org.freedesktop.login1.hibernate-multiple-sessions**

## **ResultActive=no**

Save the text file, then close the text editor.  
Now reboot the computer.

Hibernation should no longer appear in the Shutdown Menu.

If disabling Hibernation on a Laptop, we should check the power manager settings, and select alternatives for Hibernation.

## **RESETTING THE COMPUTER'S PASSWORD:** (This **DID** work as expected)

Type **sudo passwd** in the Terminal and press 'Enter'.

The (sudo) password for e.g. 'John' appears. Type in your current password and press 'Enter'.

'Enter new UNIX password:' appears. Type in your new password and press 'Enter'.

'Retype new UNIX password:' appears. Retype your new password and press 'Enter'.

We now have a new password. This worked well.

## **CHANGING THE COMPUTER'S HOSTNAME AND USER NAME:** (**this did NOT work as expected**)

1. Type 'gksu gedit /etc/hostname /etc/hosts' into the Terminal, and press 'Enter'.

The 'Enter your password to perform administrative tasks' box appears. It says: **The application 'gedit /etc/hostname' /etc/hosts" lets you modify essential parts of your system.**

2. Type in your password and click 'OK'. The above mentioned box disappears, and the "hostname (/etc) - gedit" box appears.

3. The following appears in this box: 'charles-OptiPlex-780'. Now type in the new Hostname. In this test I changed it to **john-OptiPlex-780**.

4. Click on 'File' at the top of this box. A drop-box appears.

5. Click 'Save'. We can now cancel back to the Desktop.

After this I was **not** able to access the 'Software Manager'. Instead of my new User Name being **john-OptiPlex-780**, it was now **john-Charles-OptiPlex-780**. This stopped my password from opening the Software Manager. I left it at that and reinstalled the OS.

**RAR. How to install it:** Paste **sudo apt-get install rar** into the Terminal, press Enter, then follow the prompts.

**WINE. Installing Wine and PlayOnLinux:** First install 'Wine' and then 'PlayOnLinux' from the Software Manager. 'PlayOnLinux' can also be installed by pasting the following into the Terminal, then following the prompts, e.g. **'git clone https://github.com/PlayOnLinux/POL-POM-4'**. Whilst installing, it may request the installation of both 'curl' and 'p7zip-full', etc.

**WINE. What installs in Wine:** Following is a list of the files I installed in Wine. Not all programs that run in Windows will work in Wine, but those listed below worked well straight off, though some of them may not work as well on another computer with different hardware. As this is my own list, there are not many included. The following are all **.exe** files: **To install, right-click on the .exe file, then click or navigate to 'Wine Windows Program Loader', then follow the prompts.** Keep a list of those that work well. To play or run the software, click 'Menu', rest the mouse pointer on 'Wine', then click on the program we wish to run. Alternatively, create a Folder on the Desktop, then paste the shortcuts into it.

**1By1 (Free):** It is an excellent free music player. Download and run the '1by1\_183.exe' file. Then navigate to the mp3 music folder the first time.

**7-Zip File Manager (Free):** It works well unzipping files.

**Adobe 6.0 Standard:** Insert the DVD, then open it. Right click on 'AutoPlay.exe', then 'Open

With', then 'Wine Windows Program Loader'. Then follow the prompts.

**Canon PhotoStudio 5.5:** It came with our Canon CanoScan 5600F and 8600F scanners. Insert DVD, Right-click on MSETUP4.EXE, then 'Open With', then 'Wine Windows Program Loader'. When the install box appears, only install the above. The driver does not install, so the scanner will not work. It runs as an excellent photo modifier.

**Carl's Classics v1.5:** Purchase then run the 'ccsetup.exe' file, then register it while in Wine.

**ConvertXtoDVD version 5:** Download and install **vsoConvertXtoDVD5\_setup.exe**. Not free.

**Cram Jam** (Free): By Redclaw. An excellent free brain game. Download 'cramjamsetup.exe'.

**Crimson Skies 1.0 32-bit Trial** (Free): It is an aircraft game, and has no time limit on the Trial.

You might have to restart the PC after playing it. Download and run 'crimsontrial.exe'.

**FastStone MaxView 2.1** (Free): Download the 'FSMaxViewSetup21.zip'. Inside the zip file is 'SMaxViewSetup21.exe'. Install the .exe file.

**FastStone Photo Resizer 3.0** (Free): Download the 'FSResizerSetup30.zip'. Inside the zip file is 'FSResizerSetup30.exe'. Install the .exe file.

**FLV to MP3 Converter** (Free): Download the 'flvtomp3converter\_setup.exe' file and install it.

**Free Batch Photo Resizer** (Portable 2.1): Download and install the 'PhotoResizer.exe' file.

**ImgBurn** (Free): This burning tool works well. Download and run 'SetupImgBurn\_2.5.8.0.exe'.

**Leadfoot: Stadium Off-Road Racing Demo 2001** (Free): Created by 'Ratbag'. There is no time limit on the demo. Available from the Internet Archive by entering 'Classic PC Games', and 'All Media Types'. It can be found under 'L'. Download and run 'leadfoot.exe'.

**Microsoft Midtown Madness 2 Trial** (Free): A free car racing game, with no time limit. Download and install 'mm2trial.exe'.

**Microsoft Motocross Madness 2 Demo** (Free): This free Microsoft motorbike game demo has no time limit. Download and install 'motocxm2.exe'.

**Mok v1.4** (Free): By MyPlanetSoft. An Anti-Keylogger for Online Banking. Download and run 'mok.exe'. Click 'Open With', then 'Wine Windows Program Loader'. Mok does not install, but runs as a portable program. Close immediately after using it to protect our passwords. It is not Gizmo's favourite. Download from 'myplanetsoft.com/help/mok'.

**Neo's SafeKeys v3.1.4** (Free): An Anti-Keylogger for Online Banking. Gizmo rates it at 5 out of 5. Download and install 'Neos-SafeKeys-v3-1-4-Setup.exe'. Download from the following site: 'Neo-s-SafeKeys/3000-2144\_4-75833719.html'.

**Pretty Good Solitaire** (Free): There are about 500 games included, and it is free. Download and install 'gdsol500.exe'. Some versions have been changed, so look for an original file. I rate it 10-10.

**Reckon QuickBooks Pro v7.** Insert the DVD, then install in 'Wine'. Later versions were not successful as first-up installs.

**Resistor Colour Code Solver** (Portable 1.3.1.Free): Download and install the following file: 'Resistor Colour Code Solver.exe'.

**Tick5Portable** (Free). Download and install 'Tick5Portable.exe'.

**TTTCube 3.4b** (Free): Download 'TTTSetup.zip'. Inside the zip file is 'TTTSetup.exe'. Install it.

**Virtual Painter 5:** Download and install **vp0501.exe**. It is not free.

**WinDjView v2.0.2** (Free). Download and install 'WinDjView-2.0.2-Setup.exe'. Download from '[sourceforge.net/projects/windjview/files/WinDjView/2.0.2/](https://sourceforge.net/projects/windjview/files/WinDjView/2.0.2/)'. This is an executable file which will proceed to install the full file. This is a very good viewer.

**Ywriter 5** (Free): yWriter is a free word processor that breaks our project into chapters and scenes. Though it is free, they encourage us to register it. Download and install 'yWriter5Full.exe'.

**WINE. Where are the games, etc, we installed in Wine?** The software has been installed in the following location: Double-Click on the 'Home' folder on the Desktop to open it. Right-Click on any empty space inside the 'Home' folder, then click 'Show Hidden Files'. A number of extra folders appear. The **'wine'** folder is now visible, and is usually the last one. (To return to the original folders, right-click on any empty space in the Home folder, then click on 'Show Hidden Files').

Double-click on the **'wine'** folder. Double-click on the **'dosdevices'** folder. Double-click on the **'C:'** folder. Double-click on the **'Program Files'** folder. Our installed software (that normally runs in Windows) appears in their respective folders here. **THIS DOES NOT WORK IN LINUX MINT 17.2 RAFAELA CINNAMON.**

**WINE. The correct way to find the 'Program Files' folder:** First click 'Menu', then go into the 'Wine' section and click on 'Browse C: Drive' at the top. After double-clicking on the 'program Files' folder, the installed programs that normally run in Windows appear here.

**WINE. Uninstalling Windows programs in Wine:**

Click **'menu'** on the Desktop, then go into the 'Wine' section and click on 'Uninstall Wine Software', then follow the prompts. If this is not successful, we can right-click on the program we wish to remove, then click 'Uninstall', then follow the prompts. It is best to remove any associated files that are left over in this section afterwards, using the same method.

*(Some software can be uninstalled from the Program Files folder by right-clicking on its **'uninstall'** file (if it has one), then clicking on **'Open With'**, and then on **'Wine Windows Program loader'**. Wine will then run the uninstall of the program. However, it is best to use the first method).*

Once a program is uninstalled from the Wine section, its install folder usually remains in the 'Program Files' folder. To fix this, go into 'Program Files' and delete that folder. **DO NOT** delete the 'Program Files' folder.

**WINE:** Codeweaver's **'Crossover Linux'** is a commercial program. Both PlayOnLinux and Crossover Linux utilize the 'Wine' program. I have not used it.

**MONO: I think it best NOT to remove Mono.** Mono comes installed by default, but is said to be a security risk, as it offers Windows applications a limited opportunity to run in Linux, which also includes malicious Windows software. After we removed it, the Windows type programs running in Wine were only slightly affected, that is, they were not quite as clear to view.

To remove Mono, paste **sudo apt-get remove mono-runtime-common** into the Terminal, press Enter, enter the password, then follow the prompts. This will also remove three other programs. They are: gBrainy, Banshee, and Tomboy Notes. If we wish to replace Tomboy Notes with another program, then Xpad is a good alternative. There are also alternatives for Banshee if required. gBrainy is only a game.

**VIRTUAL MACHINES:** A good way to run VM's securely is through **Robolinux Stealth VM for Linux Mint**, which in 2014 cost about \$7.58 USD. The instruction manuals cost somewhat more. Once installing its' self-created partition, it then uses Oracle VM VirtualBox to run Windows XP Pro or Windows 7. Robolinux runs on a variety of Linux systems, and can be purchased from [www.robolinux.org](http://www.robolinux.org). The 'robolinux-stealth-vm-software.deb' installation file is about 134.6kb in size (tiny).

After creating an XP Pro VM in Robolinux, the completed installation was **1.6GB** in size (with no extra programs or any Windows Updates installed), then after installing 40 programs (and no Windows Updates) into the same VM, found that it was only **4.2GB** in size.

***An XP Pro VM created on a different computer, without the use of Robolinux, and with a similar amount of programs installed, was about 20GB in size. This is because, without Robolinux, there is a need for an Antivirus, defragging, Security Software, System Restore activated, and Windows Updates, etc.***

Straight after the VM is installed in Robolinux, it must have both the 'Windows Updates' and 'System Restore' disabled. If an infection or an error should occur, simply click on 'Restore your Windows Virtual Machine', and it will be restored to your previous VM backup (as long as you backed it up first after it was created). Even though I installed a lot of programs in Robolinux VM, it still ran fast, and it booted up in about twelve seconds, ready to run. Remember to read the instructions carefully. It is very simple to install.

**VM:** I decided to do **a few tests** with the VM. First it was Backed up to an external HDD to save reinstalling it if anything went wrong. Then I installed 6-more programs in the VM (located in the 'Home' folder), one of which was QuickBooks Premier Edition 2010-11. It was then **6.1GB** in size.

**VM (Don't do any of the following):** Windows Update was then turned back on and most of the Updates were installed (only a few were left out). I then installed 'BitDefender Antivirus Free' and Opera. The XP VM now took 35-seconds to boot up, and was now **11.3GB** in size.

**VM:** I then defragged the XP VM for the first time, using the inbuilt defragger. Once completed, the VM was now **12.8GB** in size. It had increased in size by 1.5GB with just one defrag, and its' bootup time was now 45-seconds. This is the reason Robolinux says not to defrag the VM.

**VM:** Do what Robolinux recommend, that is, turn off the VM's 'Windows Updates' and 'System Restore'. Do not 'defrag' the VM. Use NO 'anti-virus' or 'security' software, and store the VM's data in its' vboxsrv' (E:) drive. The XP Pro or Windows 7 VM is said to run securely, as the Virtual Machine's '**vboxsrv (E:) Drive**' is located in a secure Linux partition, and visible on the VM's Desktop.

**VM:** If we decide not to use Robolinux, then we can still run VM's in Oracle VM VirtualBox, though the usual security software will be required for the various OS's. A number of OS's can be installed in Oracle VM VirtualBox, so we can then click on the one we want when required. As a further security precaution, we can save a copy of the completed VM's OS's on an external HDD.

**GRUB CUSTOMIZER:** Install **kde-config-grub2** From the Software Manager. To run it, paste the following into the 'Terminal', **kcmshell4 kcm\_grub2**. Be careful with it.

**LAPTOPS. IMPROVING BATTERY LIFE:** The following can also help to reduce overheating. TLP is a power management tool that can help with the overheating of Laptops, and the reduced battery life in Laptops. No configuration is required. To install it, paste the first line into the Terminal, then press 'Enter' and follow the prompts. When that line is completed, go to the next one, and so on.

```
sudo add-apt-repository ppa:linrunner/tlp
sudo apt-get update
sudo apt-get install tlp tlp-rdw
sudo tlp start
```

**USB STICK FORMATTER:** Insert the USB Flash Drive. Click on the 'USB Stick Formatter' icon. In the 'Format:' window, click on the drop-box and click in the flash drive. In this test case it is '**1000 (/dev/sdb) – 8GB**'. Click the drop-box in the second window. The formatting choices are 'FAT32', 'NTFS', and 'EXT4'. In this case we will choose '**FAT32**'. Click 'Format'. A box appears which says 'This will destroy all data on the target device, are you sure you want to proceed?' Enter the computer's password, then click 'Authenticate'. Within a very short time a small box appears which says 'The USB stick was formatted successfully'. Click 'OK'. Now remove the flash drive.



**FORMATTING/ PARTITIONING AN EXTERNAL USB CONNECTED HDD.** We will use 'GParted' for the formatting and the partitioning. GParted can be installed from the Software Manager. The stages are: **Section 1, Formatting:** and **Section 2, Partitioning and formatting:** and **Section 3, Removing Partitions:**

**Section 1, Formatting:** We will now format an external 250GB HDD (in this case connected to the computer with a USB Docker). In this **first** section we will **not** be partitioning the HDD.

01. Plug the USB Docker with the HDD inserted in it, into the computer, then switch it on.
02. Open the GParted program, and enter the computer's password when requested. The GParted screen appears, listing the computer's 'ext4', 'extended', and the 'linux-swap' file systems. *The external USB connected HDD is **not** listed at this early stage.*
03. Click on '**GParted**', located at the top-left side of the GParted screen. A drop-box appears.
04. Rest the mouse on '**Devices**' (located in the drop-box), then slide the mouse to the right in the window and click on the USB connected HDD (be careful not to click on the wrong one). In our case it was '**/dev/sdc (232.89 GiB)**'. A window now appears near the top of the GParted screen, and '**/dev/sdc1 232.88 GiB**' appears in it. If the external HDD has previously been formatted, then a solid green line will surround that window. If it has not been previously formatted, it will then say '*Unallocated 232.88 GiB*', and will be outlined with yellow dots.
05. *If the external HDD has previously been formatted, then it will have to be 'unmounted' before it can be re-formatted. To unmount it, right-click in the window named '/dev/sdc1 232.88 GiB', then click '**Unmount**' from the drop-box. If 'Unmount' does not appear there, then click within the dotted lines to close the drop-box. The solid green line around this box is then replaced with a dotted line. We can now proceed and format this external HDD.*
06. Click '**Device**' at the top of the GParted screen. A small drop-box appears.
07. Click '**Create Partition Table...**' from the drop-box. A message says: 'WARNING: This will ERASE ALL DATA on the ENTIRE DISK /dev/sdc'.
08. In our case we clicked '**msdos**' into the 'Select new partition table type' window, which suits both Linux and Windows.
09. Click '**Apply**'. The above warning message soon disappears, and 'unallocated 232.89 GiB' appears in the top window. This window is grey, and it is outlined with yellow dots. We can now partition the external HDD the way we want it.
10. Click '**Partition**' at the top of the GParted screen. A drop-box appears.
11. Click '**New**' from the drop-box. A 'Create new Partition' box appears. We can now enter the information we want into this box. As we are only formatting the external HDD at this stage, then leave 238474 in the '**New size (MiB)**' window. **NOTE:** As there are 1024kb to one Megabyte, then 238474 divided by 1024 equals about 232.88GB.
12. Click e.g. '**Primary Partition**' into the 'Create as:' window.
13. Now select the type of file system we want. Linux uses ext2, ext3, and ext4. However, it also recognizes fat16, fat32, jfs, linux-swap, lvm2 pv, ntfs, reiserfs, xfs, cleared, and unformatted. As we want this particular external USB connected HDD to be read by both Linux and Windows, then I clicked '**ntfs**' into the 'File system:' window. All remaining windows were left as they were.
14. Click the '**Add**' button in this box. The '/dev/sdc - GParted' screen changes. The large window now says 'New Partition #1 232.88 GiB', and is outlined by a solid green line. '1 operation pending' appears at the bottom left.
15. Click in the area outlined in green to apply our selections and begin the process. The following now appears towards the bottom of the GParted screen: 'Create Primary Partition #1 (ntfs, 232.88 GiB) on /dev/sdc'.
16. To proceed with '1 operation pending', click '**Edit**' at the top of the '/dev/sdc - GParted' screen. A drop-box appears.



17. Click '**Apply All Operations**' from the drop-box. The 'Apply operations to device' box appears. It says 'Are you sure you want to apply the pending operations?'
18. Click '**Apply**'. The 'Applying pending operations' box appears. It says 'Depending on the number and type of operations this might take a long time'. In the 'Completed Operations' window it says 'All operations successfully completed'.
19. Click '**Close**'. **Note:** As soon as we click 'Close', the formatting of the external HDD starts, and quickly finishes. The '/dev/sdc - GParted' screen now says '/dev/sdc1 232.88 GiB' in the top window, which is outlined with a heavy green line. At the very bottom left of the screen, it says '0 operations pending'. This means that the formatting of the HDD is complete.

**Section 2, Partitioning and formatting:** We will now Partition and format an external 250GB HDD, connected to the computer by a USB connected Docker.

- 1-10. Perform the previous 1 to 10 moves to begin.
11. Click '**New**' from the drop-box. A 'Create new Partition' box appears. We can now enter the information we want into this box. As we want a 150GB primary partition, we will delete 238474 (kb), replace it with 153600, and then press 'Enter'. When we press Enter, 84874 (kb) then appears in the 'Free space following (MiB):' window, which is equivalent to 82.88GB, or the balance of the HDD. We arrived at 153600 by multiplying 150 x 1024.
12. Click '**Primary Partition**' into the 'Create as:' window.
13. Now select the type of file system we want. Linux uses ext2, ext3, and ext4. However, it also recognizes fat16, fat32, jfs, linux-swaps, lvm2 pv, ntfs, reiserfs, xfs, cleared, and unformatted. As we want this particular external USB connected HDD to be read by both Linux and Windows, then I clicked '**ntfs**' into the 'File system:' window. All remaining windows were left as they were.
14. Click the '**Add**' button in this box. The '/dev/sdc - GParted' screen now changes. The large window now says 'New Partition #1 – 150.00 GiB', and is outlined in a heavy green line. 'Unallocated 82.88GiB' now appears in the grey window to the right, outlined with yellow dots.
15. Click inside the green outlined area to apply our selections and begin the process. The following now appears near the bottom of the Gparted screen: 'Create Primary Partition #1 (ntfs, 150.00 GiB) on /dev/sdc'. Also, '1 operation pending' is at the very bottom left of the screen.
16. To finalize the operation pending, click '**Edit**' at the top of the Gparted screen. A drop-box appears.
17. Click '**Apply All Operations**' from the drop-box. The 'Apply operations to device' box appears. It says 'Are you sure you want to apply the pending operations?'
18. Click '**Apply**'. The 'Applying pending operations' box appears. It says 'Depending on the number and type of operations this might take a long time'. In the 'Completed Operations' window it says 'All operations successfully completed'. '1 operation pending' is still at the bottom left of the screen, which means it is not complete yet.
19. Click '**Close**'. The '/dev/sdc - GParted' screen now says '/dev/sdc1 150.00 GiB' in the top left window, and is outlined with a heavy green line. At the very bottom of the screen, it says '0 operations pending'. This means that the primary partition is now complete.

We will now complete the second partition: (both partitions can be processed at the same time instead of doing them one by one).

20. The second partition is located at the right-side of the top window, and is outlined with a dotted yellow line. It says 'unallocated 82.88GiB'. Right-click in the grey area and then click on '**New**'. The 'Create new Partition' box appears.
21. Click '**ntfs**' into the 'File system:' window, and leave all other windows as they are.
22. Click the '**Add**' button in this box. The '/dev/sdc - GParted' screen now changes. While the top left window still says '/dev/sdc1 150.00 GiB', the top right window now says the following:

- 'New Partition #1 – 82.88 GiB'. Both windows are now outlined with a heavy green line. *'Create Primary Partition #1 (ntfs, 82.88 GiB) on /dev/sdc' appears in a window below the larger window, and '1 operation pending' appears at the very bottom of the window.*
23. To finalize the operation pending, click **'Edit'** at the top of the GParted screen. A drop-box appears.
  24. Click **'Apply All Operations'** from the drop-box. The 'Apply operations to device' box appears. It says 'Are you sure you want to apply the pending operations?'
  25. Click **'Apply'**. The 'Applying pending operations' box appears. It says 'Depending on the number and type of operations this might take a long time'. In the 'Completed Operations' window it quickly says 'All operations successfully completed'.
  26. Click **'Close'**. Within a few seconds **'/dev/sdc2, 82.88 GiB'** appears near the top-right, outlined in green, and **'0 operations pending'** now appears at the bottom left. We can now cancel out of GParted, as the partitioning is now complete.
  27. Now safely remove the external USB connected HDD, and reconnect it when required. The two partitions will now work on either a Linux or a Windows system.

### Section 3, Removing Partitions:

01. Plug in the USB connected HDD, then switch it on.
02. Open the GParted program, and enter the computer's password. The GParted screen appears, listing the computer's 'ext4', 'extended', and the 'linux-swaps' file systems. *The external USB connected HDD is not listed at this stage.*
03. Click on **'GParted'**, located at the top-left side of the GParted screen. A small drop-box appears.
04. Rest the mouse on **'Devices'** (located in the drop-box), then slide the mouse to the right in the small window and click on the USB connected HDD (be careful not to click on the wrong one).
05. Right-click on the first partition, then click **'Delete'** from the drop-box. Now do the same on the second partition. Both partitions are deleted, and are replaced with a single grey window, which is outlined with yellow dots. **'unallocated 232.89GiB'** now appears in that window.
06. Now proceed to format, or format and partition the drive as shown in this section as required.

**YOUTUBE VIDEOS. How to download them.** The YouTube web page is located at [www.youtube.com/](http://www.youtube.com/). YouTube videos have not been available for downloading using the 'SMPlayer YouTube Browser' in Linux Mint since the 20<sup>th</sup> May 2015. To read more, go to [www.youtube.com/devicesupport](http://www.youtube.com/devicesupport).

One way to download videos is by line command as follows: (only download legal videos)

1. Open the Software Manager, and install 'youtube-dl' (install it once only).
  2. Go to [www.youtube.com/](http://www.youtube.com/) and do a video search. Once located, click on it to play it.
  3. While the video is playing, right-click on it, then click **'Copy Video URL'**.
  4. Open the 'Terminal', and type 'youtube-dl' into the line command.
  5. Allow a space between 'youtube-dl' and the url. The url must be enclosed in single or double inverted commas, e.g. **youtube-dl "place the url here"**. Note the space after **dl**.
  6. Press 'Enter' on the keyboard. The video will now be saved to the 'Home' folder.
- If the url does not work, then delete everything from **'list** to the first **&'** in the url, inclusive. The coloured letters have nothing to do with the download/s, they are there to make it easier to follow the instructions.

**The above works well. However, should we wish to be more selective in our download/s, then proceed as indicated next.**

If we want to see the formats and resolutions available before we start downloading, type the following into the Terminal: **youtube-dl -F "url"** (there is a space after **dl** and **F**, and **F** must be a

high case letter). As above, the url of our choice is enclosed in single or double inverted commas. When we press the 'Enter' key, a number of download choices appear, listed under 'format', 'code', 'extension', 'resolution', and 'note'.

The next step is to download a video in the format and resolution of our choice as follows: Select the number that appears in the 'format' column that represents our choice of video. In this particular case we will select '18'. Type **youtube-dl -f 18 'url'** into the Terminal (there is a space after '**dl**', '**f**', and '**18**'. Also, '**f**' must be a lower case letter for downloading this way). As above, the url of our choice is enclosed in single or double inverted commas. Press the 'Enter' key, and the video will download to the 'Home' folder.

There are also other downloaders available.

**VIDEO TO MP3 CONVERSION.** First install '**soundKonverter**' and '**easyMP3Gain**' from the Software Manager. Run SoundKonverter then navigate it to a previously downloaded e.g. flv file we wish to convert to an mp3 music file. Once converted, the file will be saved to the Home folder in the soundKonverter sub-folder. If a number of mp3's have been converted from e.g. flv's, and we wish to burn them to a CD, it is a good idea to make them all play at a similar volume, otherwise one might be very loud while the next one might be very soft. This is where easyMP3Gain comes in. It can adjust a number of mp3's in a folder to a similar volume before burning them to CD. 'Out of copyright' music can be downloaded on the Internet. One location is said to be the 'Internet Archive'.

Another free converter is 'FLV to MP3 Converter Free'. This software was made to run in Windows, but also does an excellent conversion job when installed in WINE within Linux.

'FF Multi Converter' is highly rated as a multi converter, and runs in Linux. Copy and paste the following in their turn into the Terminal and follow the prompts to install it:

```
sudo add-apt-repository ppa:ffmulticonverter/stable  
sudo apt-get update  
sudo apt-get install ffmulticonverter
```

Their Home Page is: <https://sites.google.com/site/ffmulticonverter/> A link on this Web Page gives its multi conversion details.

**DEFRAGGING.** As ext3 and ext4 are the default file systems for Linux systems, then fragmentation does not often occur. As the management system used by Linux Mint is 'dpkg', we then inherit the 'apt-get' system in the Terminal. If we want to remove packages that are no longer needed and that are cluttering up the system, simply copy and paste **sudo apt-get autoremove** into the Terminal, enter the Password, then press 'Enter'. After installing Linux Mint 17.1 Rebecca Cinnamon plus the additional software, I copied the above into the Terminal and followed the prompts. The message **0 to upgrade, 0 to newly install, 0 to remove and 35 not to upgrade** appeared. This was good.

We can also copy and paste **sudo apt-get autoclean** into the Terminal to clear the local repository of retrieved packages that are mostly useless. There are also other methods, but they seem risky.

As Linux systems spread installed files all over the HDD with considerable free space surrounding them, this allows most files to grow without being split into fragments. Consequently, we don't have to worry about fragmentation until about 80% or more of the drive is filled with installed files and data. Anyway, If a problem should occur, the file system attempts to move any files around to

reduce fragmentation.

If we are experiencing problems with fragmentation, then it may be time to get a bigger Hard Drive. On the other hand, we could do the following: First copy all of our data to an external HDD. Next delete all our data from the computer's drive. Next copy all our data back to our computer's drive from the external HDD.

### THE RECOVERY MENU.

1. To access the Recovery Menu, hold the **right 'Shift' key** down on the keyboard during bootup until the 'GRUB Boot Menu' screen appears. It has five choices.
2. In this test case, highlight e.g. **'Linux Mint 17.1 Cinnamon 32-bit, 3.13.0-37-generic (/dev/sda1) - - recovery mode'**.
3. Press **'Enter'**. A lot of data moves down the screen.
4. The 'Recovery Menu' screen appears. There are eight choices. They are:
  - 'resume – Resume normal boot'.
  - 'clean – Try to make free space'.
  - 'dpkg – Repair broken packages'.
  - 'fsck – Check all file systems'.
  - 'grub – Update grub bootloader'.
  - 'network – Enable networking'.
  - 'root – Drop to root shell prompt'. (Note: be careful with 'root', as the system can be damaged).
  - 'system-summary – System summary'.

In this test case, highlight the first choice, e.g. **'resume – Resume normal boot'**.

5. A message appears. It says 'You are now going to exit the recovery mode and continue the boot sequence. Please note that some graphic drivers require a full graphical boot and so will fail when resuming from recovery. If that's the case, simply reboot from the login screen and then perform a standard boot'. Click **'Enter'**.

6. A lot of data moves down the screen once again. Shortly the login screen appears. Enter the **'Password'**, then click **'Enter'**.

7. When the computer boots, the screen resolution will be poor, and the Desktop icons will be oversized. This is normal. A message says 'Running in software rendering mode – Cinnamon is currently running without video hardware acceleration and, as a result, you may observe much higher than normal CPU usage. There could be a problem with your drivers or some other issue. For the best experience, it is recommended that you only use this mode for troubleshooting purposes'. **Now restart the computer.** Once restarted, all is back to normal.

**BACKUP with APTonCD. Backing up the computer's installed packages:** The computer's packages are backed up to the Home folder, while further moves will backup the packages to a DVD. The backup can be restored to the same computer, or to any computer that runs the same version of Linux Mint. After doing a fresh OS install, first install the APTonCD program from the Software Manager (or from the already backed up DVD). We can then insert the backed up DVD to install all of the packages.

**BACKUP with Backup Tool**, which comes with Linux Mint, can do similar to the above. It is located as follows: 'Menu', Administration, then 'Backup Tool'.

### BACKUP. Backing up and Restoring Linux Mint v17x, using the live ISO Redo DVD:

Redo v.1.0.4 is a free backup and restore tool for both **Linux and Windows**: First install **'Partclone'** from the Software Manager. Partclone is a utility to clone & restore partitions. Once installed, locate the 'Redo' web page and download the **'Redo v.1.0.4'** ISO. It is about 261.5MB in size. Then burn it to a DVD as an active ISO using either a Windows or a Linux system. 'Redo Backup and Recovery' is a front-end for 'Partclone', which does the actual backup and restore. Redo

will not restore to a smaller sized HDD.

**BACKUP WITH SHADOW PROTECT:** ShadowProtect is an outstanding complete computer imaging and restore software for windows. They now have a version for Linux called 'StorageCraft ShadowProtect SPX'. To check which Linux versions are included, go to the following web site: [www.shadowprotect.com/storagecraft-shadowprotect-spx](http://www.shadowprotect.com/storagecraft-shadowprotect-spx).

**BACKUP. KBackup** is said to be an easy to use backup program, and can be installed using the Software Manager. It can do both full and incremental backups, and the storage is in the compressed TAR format. It can backup to an external HDD, or on a remote URL.

**BACKUP:** To do a fresh install or reinstall, my method of choice is to use this complete document as a guide while reinstalling everything listed in the document. I usually start one day, and finish early the next. Done this way, it is a simple task, and I know it will be done properly. If I had to rely on my memory alone, it would never get done. This is the value of sweating over a document to create it to suit oneself, so that it never has to be completely worked out again. There will be future modifications of course.

## **OTHER LINUX OPERATING SYSTEMS FOR LAPTOPS AND OLD PC'S:**

The following operating Systems are based on Debian and Ubuntu. For this reason a lot of the information in this manual should be usable with the following as well. The systems listed below are light to run. To obtain more information, go to their Web Sites.

**Linux Mint 17.1 xfce Rebecca LTS 32-bit.** Released 11<sup>th</sup> January 2015, and current till 2019. Its' MD5 signature is **5b2d4eac9c0505ed36c2e50ecb9fcce0**. It also suits some **Laptops**.

**Linux Mint 17.1 xfce Rebecca LTS 64-bit.** Released 11<sup>th</sup> January 2015, and current till 2019. Its' MD5 signature is b053518aa6e9f33391251a3c521462d3. It also suits some **Laptops**.

**Lubuntu 14.04.2 i386 Trusty Tahr LTS Desktop.**  
Its' MD5 signature is **aab1b7817c7994e2f9a6fc5f90c609bd**. It also suits some **Laptops**.

**Ubuntu Mate LTS i386 (Intel x86) LTS.**  
Its' MD5 signature is **66db0223ffb081844ba70b7424a64a58**. It also suits some **Laptops**.

**Xubuntu 14.04.2 i386 LTS Desktop.** Released 16<sup>th</sup> April 2014, and current till 2017.  
Its' MD5 signature is **b840066af2797fa8c973d99110c64c91**. It also suits some **Laptops**.